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THE RAILWAY GAZETTE

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Anglo-Brazilian Trade Talks

AS a result of recent discussions in London between Mr. Ernest Bevin, Foreign Secretary, on behalf of Great Britain, and the Brazilian Foreign Minister, Senhor Neves da Fontoura, on behalf of Brazil, an accord has been reached under which a Brazilian Purchasing Mission will visit England during the next two months to place orders for equipment urgently needed in Brazil. The British Government has undertaken to expedite delivery, and it is expected that large contracts will be placed for British-made transport equipment and machinery. The Brazilian Mission will discuss the purchase of material which is urgently required by Brazil for the rehabilitation and modernisation of its transport system and industry. The Brazilian Minister for Foreign Affairs stated that the Brazilian authorities, without excluding the possibility of organising mixed Anglo-Brazilian companies to take over and operate certain British interests, were disposed to lend sterling for the purchase of material. These British interests include the Leopoldina Railway, Manaus Tramways & Light, Para Electric Tramway & Light, and Ceara Tramway Light & Power, and he proposed that mixed commissions should be appointed in Brazil to study the equipment needs of each of these undertakings.

Mr. John Bagwell

Mr. John Bagwell, whose death at the age of 72 we recorded in our August 30 issue, was a life-long friend of Cecil Paget from the time they were at Harrow together until the death of the latter in 1936. The late Cecil Paget, it will be recalled, was at one time Works Manager of the Midland Railway, Derby, where he designed the 8-cylinder 2-6-2 locomotive No. 2299, which has since become well-known as the "Paget" locomotive, and he later became General Superintendent of that railway. Mr. Bagwell joined the Midland Railway in 1897, and he was largely associated with the rehabilitation of that railway as a passenger line. When, in 1909, the position of Superintendent of Passenger Service was inaugurated, he was its first holder. He went to the Great Northern Railway, Ireland, in 1911, as General Manager. At that time he was 37 years old, and the youngest General Manager of any British railway. He took to Northern Ireland many of the methods he had applied successfully on the Midland Railway, and he did much to develop the passenger services of the Great Northern Railway. He retired from the Great Northern Railway in 1926. A portrait and some biographical details are given elsewhere in this issue.

Mr. Geoffrey Marshall

Little over a year ago Mr. Geoffrey Marshall retired from L.N.E.R. Service. On September 14 he died, aged 64, to the regret of a wide circle of friends. Mr. Marshall was the youngest of seven officers of the Great Northern Railway appointed to important posts on grouping in 1923. They included three L.N.E.R. all-line officers—Sir Nigel Gresley, Chief Mechanical Engineer, C. L. Edwards, Chief Accountant, and W. T. Weeks, Chief Stores Superintendent. The other four took charge of departments in the Southern Area, L.N.E.R.—C. J. Brown as Engineer, A. J. Brickwell as Estate & Rating Surveyor, C. J. Selway as Passenger Manager, and G. Marshall as Goods Manager. It is a curious fact that the immediate successor of each of those officers had acquired his early experience of railway work either on the North Eastern, the Great Eastern, the Great Central or the North British Railway, with the exception of one technical officer, who had been in private practice. Mr. Marshall's tenure of office lasted for fully 20 years. Perhaps the most striking changes during that period were the mechanisation of the cartage force, controlled by the Goods Managers on the L.N.E.R., and the revivifying of the canvassing arrangements. Rates questions occupied much of Mr. Marshall's time. He had an incisive way of getting to the root of a case, and clear thinking and sound judgment made him a good witness before a tribunal. During four years, 1924, 1935, 1943, and 1944, he presided over the Goods Managers' Conference, of which he had been a member since 1919, and his total service with that body must be almost a record. A portrait and biography of Mr. Marshall appear on another page.

Home Railway Traffic Receipts

For the four weeks ended September 8 the traffic receipts of the four main-line railway companies and the London Passenger Transport Board, including joint lines, were higher by £485,000, in comparison with the similar period of last year, at £31,024,000. The four weeks was the second full period since the July increases in railway rates, and comparison was also affected by the VJ-holidays which last year occurred on August 15 and 16. Of the individual categories of receipts, only those relating to coal and coke were greater; they showed an advance of £809,000 at £4,102,000. Passenger rates were lower by £301,000 at £18,637,000, and merchandise revenue at £8,285,000 was less by £23,000. In the following tables the receipts for the four weeks ended September 8 compared with those for the similar period of a pre-war year, and also the aggregates for the 36 weeks of this and last year, are given, with those of a pre-war year for comparison.

FOUR WEEKS ENDED SEPTEMBER 8, 1946

	1946 £000	1945 £000	+ or - £000	Per cent.	Prewar Year £000
Passengers ...	18,637	18,938	-301	-1.6	9,212
Merchandise ...	8,285	8,308	-23	-0.2	3,954
Coal and coke ...	4,102	3,293	+809	+19.4	2,366
Total ...	31,024	30,539	+485	+1.5	15,532

AGGREGATE FOR THE THIRTY-SIX WEEKS OF THE YEAR

	1946 £000	1945 £000	+ or - £000	Per cent.	Prewar Year £000
Passengers ...	142,999	147,617	-4,618	-3.2	74,916
Merchandise ...	71,832	87,703	-15,871	-18.1	39,055
Coal and coke ...	33,711	32,719	+992	+2.9	24,101
Total ...	248,542	268,039	-19,497	-7.3	138,072

For the 36 weeks of the year to date, home railway traffics at £248,542,000 are now £19,497,000 less than for the comparable period of 1945. Coal and coke receipts at £33,711,000 show an increase of £992,000, but merchandise revenue at £71,832,000 is less by £15,871,000, and passenger takings at £142,999,000 are down £4,618,000.

Overseas Railway Traffics

Central Argentine receipts showed a decrease of ps. 46,144 in the first week of September, but as the result of a recovery in the week ended September 14 the net gain for the fortnight under review was ps. 91,256. The other three principal British-owned companies have recorded gains in both weeks, totalling ps. 366,000 on the Buenos Ayres Great Southern, ps. 127,000 on the Buenos Ayres Western, and ps. 242,000 on the Buenos Ayres & Pacific. In our issue last week we recorded the signing of a Decree by the President of Brazil taking over the San Paulo Railway. The report of this company for 1945 showed receipts on the main line from Santos to Jundiáhy of £4,400,612, an increase of £926,799 over the preceding year. With working expenses at £3,900,861, the operating ratio was 88.64 per cent. The total export and import traffic was 6,480,449 tons, which, although 582,609 tons below the figure for 1944, was otherwise the highest tonnage handled since 1936. Operating results of the principal South American railways are compared below:—

	No. of week	Weekly traffics	Inc. or dec.	Aggregate traffics	Inc. or dec.
Buenos Ayres & Pacific*	11	2,075	+151	23,113	+1,427
Buenos Ayres Great Southern*	11	3,506	+197	35,754	+1,210
Buenos Ayres Western*	11	1,207	+11	13,139	+1,030
Central Argentine*	11	3,091	+137	34,190	+722
Canadian Pacific	37	1,554,750	-	37,500,112,750	-5,549,000

* Traffic returns in thousands of pesos

The Canadian Pacific aggregate to the end of August was £5,442,750 below that for the corresponding period of 1945.

Travelling to World Markets

Mr. Percy Lister, chairman of the export committee of the British Engineers' Association, has just completed a world tour in the course of which he has covered 80,000 miles in 222 days—an average of some 370 miles a day. His route was via Marseilles and Malta to Cairo, and on to India, Ceylon, Australia, New Zealand, Canada, the United States, Mexico, Central and South America, back to Washington and home via Newfoundland. On his return he is preparing a detailed re-

port for members of the B.E.A., but as an interim measure he gave a résumé of his impressions at a meeting last week. Of India, he said that if Great Britain seized the opportunity to provide guidance and assistance in the development of that country's secondary industrial requirements, India gradually would build up a purchasing power for capital and consumer goods. Changed conditions in both India and Australia would have to be recognised by British manufacturers, but that need not mean a reduction of our total exports. He suggested, too, that our industrialists could learn from the United States in obtaining the maximum productive yield from labour, to the advantage of employer and employee alike. He advocated early study of the potential markets in Mexico and South America to ensure that British trade representation was in the best hands.

Underground Railway Construction

Before underground railway construction can begin, test borings must be made at hundreds of places, and the siting of station tunnels and their alignment, as well as the run of the tunnels as a whole, needs careful study. Larger and longer trains would require considerable adjustment to the designs suitable for the present underground traffic, and difficulties of arranging interchange at stations would have to be faced, to avoid the inconvenient interconnections resulting from lack of planning in an underground system. Disposal of excavated material would also present a problem. These were some of the points raised by Mr. J. C. Martin in his paper on underground railway planning, read at the recent British Association conference. Although practical planning for the whole London scheme has not gone far, said the author, a committee composed of practical men, chosen for their technical knowledge of their several professions and given an adequate staff, could produce a practical plan within two years, provided that their work was uninterrupted and that they could combine as a team. Work should be arranged in order of priority, with communications planned first, starting with railways and then roads, buildings coming later except in the case of devastated areas.

L.M.S.R. Winter Timetables

The London to Birmingham and Wolverhampton service of the L.M.S.R. will resume something of its pre-war aspect in the winter timetables coming into force on October 7, which are reviewed elsewhere this week. Restaurant cars are being restored to the principal trains (except on Saturdays), and accelerations will give fastest times of 2½ hr. from Euston to Birmingham and 2 hr. 10 min. from Birmingham to Euston. A new express will be introduced in each direction. Manchester, also, will have a new service from Euston, and through carriages will be restored between London and Southport. In addition to the acceleration of Euston to Manchester and Liverpool trains, which will give one run of 3½ hr. from Liverpool to Euston, Lancashire will receive improved facilities by accelerations and more convenient departure times on the Midland route. Yorkshire towns, also, will benefit from the general improvement in Midland Division services. Sheffield being given two trains to London in 3 hr. 18 min., and Leeds having a new express to St. Pancras in 4 hr. 13 min. Accelerations of up to 95 min. will take effect on Anglo-Scottish services. Cross-country trains will share in the general improvement, an average acceleration of 32 min. taking effect on seven expresses between Bristol and Sheffield.

Sleeping Berth Reservations

The continued practice, 16 months after the end of the war in Europe, of reserving many berths in sleeping cars for Government-sponsored travellers, was the subject of a leading article in the *Evening Standard* recently, which we reproduce on our Scrap Heap page. Pointing out that a recent analysis showed that 68 per cent. of these priority sleepers were allocated to business men, 14 per cent. to Members of Parliament, 10 per cent. to members of the Services and 8 per cent. to Civil Servants, that newspaper comments that it must be a baffling task to decide between rival applica-

tions by these various categories. It urges that an end should be made to the system which encourages favouritism, is unfair to the ordinary traveller, and is a piece of privilege which has no place in a democratic country. The *Evening Standard* leader writer might reflect, too, on how much worse matters may be if the British railways should be nationalised. For example, in South Africa, every Member of Parliament has an all-stations pass, whilst every Minister retains his for life. Should British railways be nationalised, no doubt the administrative ranks of the civil service will also require travel amenities as of right. It is unlikely, too, that such pillars of a Socialist Government as the trade union leaders will be willing to forgo their claims to privilege. With Government control planned for large sections of industry, the ordinary fare-paying passenger or industrial consignor may face a very thin time. Presumably, however, they would still be expected to supply the revenue—or perhaps that might be a charge on the general body of taxpayers?

Locomotive Colours

Recent announcements by the main-line railways about the colours of their locomotives encourage the hope that British locomotive stock as a whole may now begin to lose its woe-begone wartime appearance. From the publicity point of view, a dingy locomotive at the head of a passenger train is a poor advertisement; moreover, the psychological effect on engine-crews of engines that look as though no one was particularly concerned about their appearance may well be that the engine-men will take little care of them either. Shortage of staff and materials has been the reason for the sad decline from normal British standards of locomotive cleanliness, but fortunately there have been exceptions, and the Great Western and Southern Railways in particular, which still continued in large measure the use of their standard colours, deserve congratulation for the way in which they have succeeded, despite all difficulties, in keeping so many of their locomotives in spick-and-span running order. Now the L.N.E.R. has announced that, whereas before the war the principal express passenger and general service classes only were turned out in apple-green, in future all L.N.E.R. locomotives without distinction will appear in colours, including the re-emergence of the streamline Pacifics in their brilliant Garter blue. The L.M.S.R. alone has determined on an all-black locomotive stock, with certain decorative additions, but even black can be attractive if it is kept clean.

Training of Apprentices

THE employment and training of apprentices necessarily represents a compromise between two conflicting requirements. On the one hand there is the need to provide a satisfactory training, to ensure a steady supply of skilled craftsmen in the various trades associated with the engineering industry. On the other hand, there is the inevitable tendency for management to regard apprentices merely as a convenient supply of cheap labour. The latter policy is extremely short-sighted. It is essential for the success of any industry that the highest standards of craftsmanship should be maintained and encouraged. Elsewhere in this issue we publish an account of the progressive system of workshop training employed by the L.M.S.R. The object of this system is to ensure an adequate supply of craftsmen, but at the same time "trade apprentices are not allocated to sections merely for the sake of training; each is required to be a productive unit."

With engineering apprentices (as opposed to trade apprentices) the position is rather different. Engineering apprentices may be selected from the ranks of the trade apprentices or entered direct from secondary or public schools. They are given an all-round engineering training extending over a period of 3 to 5 years, according to age at entry, and during this time they pass systematically through the principal shops. Here again the engineering apprentice is required to be a productive unit while attached to each section. Engineering apprentices also receive instruction at part-time day technical courses, so that on completion of their apprenticeship at the age of 21 they are suitable for employment in junior technical positions.

Boiler Efficiency with Pulverised Fuel

THE use of pulverised fuel has become standard practice in recent years for firing large stationary boiler installations. Losses of heat due to imperfect combustion, and to waste of solid fuel in dropping through the grate, are eliminated, and the maximum use can be made of heat transmission by radiation to water tubes lining the combustion chamber. The most serious waste of energy in a boiler is associated with the heat rejected in the flue gases. With a stationary boiler, this loss can be reduced to a large extent by incorporating an economiser or feedwater heater in the system, and by employing a forced draught, but the use of pulverised fuel also helps to keep down the loss of heat in the flue gases by reducing the amount of air necessary for satisfactory combustion. Boiler efficiencies of over 90 per cent. are claimed from test results.

It is unlikely that the possible benefit from using pulverised fuel can be realised completely in practice in the case of a locomotive, because of the severe restrictions imposed on the size and shape of a locomotive boiler. In a letter published elsewhere in this issue, a correspondent suggests that the reason for the lack of success of previous locomotive trials with pulverised fuel is the fact that in every case the conventional locomotive boiler has been used. To design a satisfactory locomotive boiler for pulverised fuel firing would be a difficult undertaking. However, in view of the continuing importance of fuel economy, it might be worth while to experiment further.

Argentine Railway Deal

AS was briefly recorded in our last week's issue, the British Government Mission which went to Argentina early in July has succeeded in completing an *ad referendum* agreement with the Argentine Government which will determine the future of the British-owned railways. At the end of the current calendar year, or as soon afterwards as practicable, the British companies, which have operated under the Mitre Law since 1908, will be superseded by an Argentine company, with the participation of the Argentine State and/or Argentine private individuals, which will acquire and operate assets, direct and indirect, of the British-owned railways situated in Argentina, as set out in a schedule to be agreed. The new company will take over the rights and responsibilities for the British companies, but will not assume responsibility for the debentures.

The Argentine Government will appoint a technical advisory sub-committee to meet representatives of the British railway companies before the end of October and agree on the amount of the initial capital, the constitution of the new company, the transfer, basis of operation generally, and any contingent questions. The new company will retain the present privileges under the Mitre Law as regards freedom from taxation, including import duties, with the exception of supplies normally produced in Argentina. Dividends paid by the new company to the British companies or to any holding company or organisation formed by them will be free from Argentine taxes also.

The capital of the new company will be in shares in Argentine pesos, will rank *pari passu* in all respects, and will be allotted fully paid as the price of the assets purchased. The Argentine Government reserves the right to acquire at par at any time part or all of the shares in the hands of any holder, and the British railway companies will be entitled to buy and sell shares of the new company in Argentina.

If the net revenue of the new company does not reach 4 per cent. on the issued capital for two consecutive years, the Argentine Government will adopt measures to permit 4 per cent. to be earned as a minimum. If the net proceeds exceed 6 per cent. on the issued capital in any year, the excess shall be applied to the amortisation of capital or constructions and extensions of the railways. If the net income available for distribution on the initial capital does not amount to 80 million pesos in any year, the deficiency will be made good to holders of initial capital by the Argentine Government. Net income means the amount available for distribution after meeting all outgoings, including provision for renewals at rates to be agreed.

The Argentine Government will provide the new company

with 500 million pesos in cash, spread over the next 5 years, for the modernisation of the system, in exchange for new shares of the same class as those issued in respect of the initial capital, except that they will not rank for government guarantee when the annual net profits do not amount to 80 million pesos. No taxes will be payable either by the new company or by the British companies in respect of the formation of the new company. The agreement is conditional on approval by shareholders of the British companies in accordance with English law and by the Argentine Government in accordance with Argentine law. Such approval, when obtained, and the due completion of the transfer, shall be deemed to take effect from July 1, 1946, and all rights and obligations of the Argentine Government, the British companies, and the new company shall operate from that date.

Publication of the terms of the agreement occasioned considerable activity in Argentine railway securities on the London Stock Exchange, and the substantial general rise in prices indicates that the settlement has been received favourably by all classes of investor, notably the debenture holders. Stockholders have perceived that one of the most valuable clauses relates to the guarantee by the Argentine Government of an annual net income of \$80,000,000 for distribution among the British stockholders, free of Argentine taxes. The amount is equivalent to £5,000,000 at current rates of exchange, and, though somewhat lower than the amount of net receipts which reached London in the last financial year for which returns are available, that is, 1944-45, when the total net receipts of the nine companies amounted to £5,547,000, there is the important advantage that the sum receivable in future will be guaranteed.

There remains to be settled the number of shares of peso denomination in the new Argentine company to be allotted to the holders of sterling securities in Great Britain in satisfaction of the purchase price of their properties, which will be determined by negotiation between a sub-committee to be set up by the government and representatives of the companies. According to the last published accounts, the capital cost of the lines amounts to £254,000,000, which compares with the recognised capital in Argentine pesos of \$2,642,000,000 (about £165,000,000 at current rate of exchange).

No information is available as to the basis on which the sub-committee will proceed to establish the purchase price of the lines and ancillary undertakings, which is a pre-requisite to the formation of the new Argentine company and the issue of shares of peso denomination to the present British security holders, but a sound case can be submitted in support of a claim for the amount of the recognised capital at least, seeing that the expropriation rights of the government under the Mitre Law were valued 20 per cent. above that figure.

It is true that the holders of the new shares will benefit by the guaranteed income of 80 million pesos a year, but the government retains the right to purchase the shares at any time, at their par value, which will deter would-be purchasers from buying them at a premium. The shares will be marketable on the Buenos Aires Stock Exchange, and, in the light of current yields of 2½ to 3 per cent. obtainable on Argentine Government bonds, it is reasonable to expect that they will retain their par value. The sub-committee is to be appointed before the end of October, and it is the intention that the transfer of the lines shall take place by January 1 next. It is doubtful whether it will be practicable to formulate a scheme for submission to the various classes of debenture and shareholders resident in Great Britain until the sub-committee has reached agreement with the representatives of the companies. Thereafter, support for the ratification of the agreement will depend on the terms which can be offered to debenture holders primarily, and, subsequently, to the preference and ordinary stockholders.

There is an indirect, but no less important, aspect of the transaction which will give wide satisfaction. For many years, British manufacturers were accustomed to supply the Argentine railways with steel rails, rolling-stock, electrical equipment, and the long list of miscellaneous items required for railway services. Uncertainty as to the future of the companies when privileges under the Mitre Law lapsed on January 1 next, and the great difficulties in earning sufficient net revenue to attract fresh capital for the improvement and modernisation of lines and equipment, have prevented orders

from flowing freely to the factories in Great Britain. Not only will the creation of an Argentine company with direct government participation enhance the prospects of higher revenues, which will facilitate more liberal maintenance expenditures, but the provision of the substantial sum of £30,000,000 by the Argentine Government during the next 5 years will allow modernisation programmes to be pursued vigorously, and will release an impressive pent-up demand for railway equipment of all kinds, most of it obtainable in Great Britain, the supply of which will prolong considerably the present full employment of industrial plants; indeed, the only deterrent would appear to be the capacity of the works in this country to accept and fulfil orders available.

Railway Charges Inquiry

THE Charges Consultative Committee, which has been asked to advise the Minister of Transport as to the best method of adjusting the charges made by the four main-line companies so that during 1947 they would enable the companies to earn net revenues approximating in total to the fixed sum of £38,633,000 payable under the railway control agreement, sat in public on four days last week. Mr. C. R. Dashwood gave evidence on financial matters on behalf of the companies with admirable poise and lucidity, and already has furnished the Committee with 27 financial statements.

These statements contain a wealth of statistics of which the most important is the fact that, calculated at the rates and charges in force at July 1, 1946 (the present level), the companies' gross receipts in 1947 are estimated at £340,186,000, and their expenditure at £317,274,000. After the deduction of miscellaneous charges and the cost of special items of expenditure, it is estimated that the net revenue would be £16,905,000, or, including minor railways and worked lines, £17,451,000. This represents a deficiency of £21,182,000 compared with the aggregate of the fixed annual sums payable to the companies (£38,633,000), and it is to meet this estimated deficiency that the Committee has to suggest increases.

A further statement shows that the net revenue of the companies for the first 24 weeks of 1946 was only £9,337,000. Mr. Dashwood made it clear that, although it is always difficult to forecast railway receipts and expenditure, it was particularly difficult to do so for 1947 because the level of receipts in that year will depend very largely on the speed at which the decline in Government traffic is offset by increased commercial employment, and also on the situation in the coal industry. On the expenditure side, particularly as to freight, costs will be governed largely by the volume of the traffic, while those in connection with passenger traffic will depend in large degree on the extent to which the companies are able to restore their pre-war standards of service.

In commenting on the various statements, he disclosed for the first time that, in addition to the surplus of £195,277,000 which the companies earned from 1941 to 1945 above their fixed annual payments and which was paid over by them to the Exchequer, they had been directed by the Ministry of Transport to charge in the net revenue accounts in those years special provisions to meet contingent liabilities (the nature of which witness was not at liberty to disclose) which totalled £30 millions. This very large sum is still being held by the railway companies on behalf of the Minister, but we may mention in parenthesis, that no reference to the existence of this substantial reserve has been made in any of the White Papers issued by the Ministry of Transport giving the results of railway working for those years.

On the subject of the conversion of locomotives from coal to oil burning, Mr. Dashwood said that, even after taking into account the proposed subsidy of £1 per ton which is to be paid to consumers of fuel oil, the fuel cost of operating oil-fired locomotives would be far heavier than for coal-fired locomotives. Further, the cost of converting the engines and providing storage installations was estimated at £2,000,000, but no provision for these items had been made in the 1947 figures, as they were too problematical. He also drew attention to the fact that during 1947 the companies estimated that they would have to spend £3,641,000 on compensation for goods lost or damaged, compared with £470,000 pre-war. Finally, he explained the intricacies of the maintenance provisions of the

railway control agreement with remarkable clarity and brevity. His examination-in-chief ended with the most unusual remark that he would look forward to his cross-examination.

Mr. Dashwood explained that his figures were prepared on the basis of estimates furnished by the commercial officers, and Mr. F. A. Pope then gave evidence as to the manner in which these had been compiled. Nine statements were submitted by him to the Committee, covering all phases of railway activities. After commenting on the many difficulties incidental to the compilation of traffic estimates for 1947, he explained that the three big factors to be taken into consideration were the probable level of Government traffic, the level of public traffic and the extent to which alternative transport facilities would be used. He then explained in detail the methods adopted in framing the estimates and claimed that the estimates of traffic likely to pass by rail in 1947 were not pessimistic, but had been prepared on the basis of a faith in the ability of the country to recover from the effects of the war. Accordingly, the railways anticipated earning £252 millions in 1947 from public traffic as compared with £214 millions in 1938 calculated at the 1946 level of charges. Including Government traffic, the total receipts for 1947 from railway working were estimated at £303 millions. At this stage of the proceedings Mr. Pope was congratulated on his extremely clear explanation.

As to the manner in which the expected deficiency in net revenue of £21,182,000 should be raised, Mr. Pope said the railway companies recommended for the consideration of the Committee that the existing level of railway rates and charges should be raised to an all-round figure of 37½ per cent. over pre-war. In doing so, he suggested that the considerations which actuated the Minister of Transport in introducing differentials in favour of workmen, season ticket holders under war conditions no longer applied, and that, as the scales of standard charges approved by the Railway Rates Tribunal for operation from 1928 already provided for preferential treatment for workmen and season ticket holders, the further differentiation introduced by the Minister was unjustified under the more normal conditions likely to exist in 1947.

Similarly, the railway companies saw no reason why ordinary passengers should be called on, in effect, to subsidise other classes of passengers or charges for the conveyance of freight traffic. Further, they did not think that an increase to the level of 37½ per cent. would have any appreciable effect on rail carryings in 1947. If this increase were applied to the estimated traffic, it should yield £589,000 more than the estimated deficit of £21,182,000. With such substantial sums of money involved, it was not practicable to adjust the 37½ per cent. to give the exact figure required. If, however, the Committee decided that for national reasons it was desirable to maintain the differentials introduced by the Minister, to obtain the necessary revenue it would be necessary to increase ordinary passenger fares and parcels rates from their existing level of 33½ per cent. to 42½ per cent. above pre-war, and season tickets, workmen's fares, and freight rates from 25 to 33½ per cent. As regards dock charges, the companies felt that the existing level of dock charges should be raised from 40 per cent. (15 per cent. in the case of coastal liners and cargo) to a uniform figure of 60 per cent. over pre-war. The hearing was then adjourned until Tuesday, September 24.

Flat-Bottom Rail Defects

IN view of the rapidly increasing use by British railways of flat-bottom rails, of which some thousands of tons have now been laid in the principal main lines, a report on rails made to the March meeting of the American Railroad Engineering Association is of interest. It was the "Twelfth Progress Report of the Joint Investigation of Failures of Railroad Rails in Service and their Prevention," and was presented by the Rail Committee of the A.R.E.A.

Though the peak appears now to have been passed, the transverse fissure trouble continues on a very extensive scale: 38,708 fissure failures were reported in 1944, of which 31,781 were discovered in advance of actual failures by patrolling detector cars, and 6,927 were in rails that broke in the track, in certain cases with disastrous results. It would seem that detection is gaining by degrees on the failure rate, due to the constantly increasing mileage of the most heavily-trafficked main lines now being laid with controlled-cooled rails, though

the detector cars obviously must continue their systematic work for many years.

In Great Britain the susceptibility to failure from this cause is considerably less than in the United States, as the maximum carbon content of the British medium-manganese rail is limited to 0.60 per cent., as compared with carbons of between 0.70 and 0.80 per cent. in the heaviest American rails. The introduction here of flat-bottom rails, in which the strains set up in cooling, by reason of section, are greater than in bull-head rails, will make it advisable to pay closer attention than hitherto to the controlled-cooling arrangements.

Irregular surface hardening of rails, or corrugation, gives trouble in the United States as it does in this country. This report mentions that research has been going on in the U.S.A. to determine the hardness and metallic structure of the high bright spots on the running surface that cause such noisy running. Experiments have been carried out with some success on freight tracks on the Illinois Central System in the flame tempering of corrugated rails, with the result that the hard spots were softened and disappeared later under traffic. It would be of interest if a similar experiment could be tried here on some of the excessively noisy heat-treated rails which are causing such concern at the present time in electrified and other lines carrying heavy traffic at even speeds.

The American report also refers to rails which have suffered wheel-burns from slipping locomotive driving wheels. If a detail fracture has started from the area of the burn, failure of the rail is likely to occur, and it should be removed from the track; where there is no sign of cracking, welding up of the burned area has given good results, and the weld may be expected to give satisfactory service.

Considerable attention is paid to the shelling or flaking of rails on the gauge corner of the head, a defect which is giving considerable trouble in America on the high rail of curves where traffic conditions are severe. One curious effect, not entirely explained by the disparity in trainloads, was on a test length of the Norfolk & Western Railroad. Outer rails on the westbound curve, which carries an average gross weight of 60,000,000 tons annually in coal wagons of 55, 70, and 90 tons' capacity, shelled severely, whereas those in the eastbound track, which carries mainly empties, showed no sign of shelling. No final conclusions have been reached as to the cause.

The Committee has not found any direct connection between the chemical composition of rails and their susceptibility to shelling, except in so far as the hardness of the steel is affected; in this connection heat-treated rails and rails containing 3 per cent. of chromium have given better results than rails of standard composition. It has been shown that shelling and flaking take place equally with lubricated and non-lubricated rails. Slowing down the rate of rolling and finishing at lower temperatures in the mill confers no measurable benefit. Transposition of the high and low rails on the curve, however, is definitely advantageous, if it is done in time.

The report contains much valuable information about rail-joints. In tests on the Pennsylvania and Santa Fe Railroads, end-hardening of the running surfaces of rails at the joints has given results that fully justify the labour involved, in the reduction of end batter so brought about. Caution is necessary in the application of the treatment. On the Chesapeake & Ohio Railroad it was found the quenching with water is likely to produce weeping cracks in the steel, liable, as their name implies, to spread and ultimately to cause fractures. Rails in which the initial treatment had been too drastic, and which had been tempered to a lower hardness, suffered in the same way. A Brinell hardness figure after end quenching, which gave no trouble, was between 360 and 375.

As to fishplate breakage, one cause has been traced to the hot sawing of rails after rolling, which leaves a burr at the fishing angles; even after this has been removed, there may still be some slight distortion of the section, which cuts into the fishplate and forms a starting point of cracks. Fishplates of high manganese alloy have given good results, though this is a costly expedient for reducing breakages. The report stresses the need for a fishplate steel of reduced notch sensitivity—that is to say, a steel in which cracks will not develop so readily as a result of fatigue conditions. It has been found that fishplates 36 in. in length have a longer life than 24 in. plates, and that the much advertised head-free fishplates do not appear to give any better service than head-contact plates.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Riding Qualities of Multiple-Unit Trains

71, Tivoli Crescent,
Brighton, 5. September 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In view of the possible future increase of electric traction, I should be interested to hear the comments of your readers with regard to the riding qualities of multiple-unit stock. So far as my own experience of this stock on the Southern Railway is concerned, I find that, in certain parts of the train, the riding, at speeds in excess of about 45 m.p.h., is such as to make reading difficult and writing impossible, and compares most unfavourably with that of steam-hauled trains travelling at speeds in the 75-85 m.p.h. range.

I suggest that these characteristics are attributable in varying degrees to three main causes, namely:—

- 1.—Causes inherent in the multiple-unit system, e.g., relative movement between motor units.
 - 2.—Defective design of coach suspension and track layout.
 - 3.—Lack of maintenance of both rolling stock and track.
- The latter has no doubt been aggravated by the high intensity of traffic and heavy unsprung weights encountered in electrified systems.

I am, Sir,

Yours faithfully,

FRANCIS J. R. WATTS

Railway Engineering Manuals

Cie. du Chemin de fer du Bas-Congo au Katanga,
Elisabethville, Katanga,
Belgian Congo. September 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the issue of *The Railway Gazette* for August 2, 1946, we have noticed an article entitled "L.N.E.R. Engineering Department Manuals." Certain manuals (Manuals of Standard Practice) which are spoken of in this article are of a nature to interest us. We would ask you to let us know if it is possible to obtain certain of these manuals, and where we should apply in order to obtain them.

At the same time we should be much obliged if you would tell us if similar manuals have been brought out for the staff of the Mechanical Engineering Department.

Thanking you in anticipation,

C. DUFOUR,

Le Chef du Secrétariat

[We recommend our correspondent to apply to the Chief Engineer's Department, L.N.E.R., Kings Cross Station, London, N.1.—Ed., R.G.]

Co-ordination of Transport

96, The Chine,
London, N.21. September 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have long felt that *The Railway Gazette* has been losing its well-earned reputation for fairness and dignity in its handling of the nationalisation of railways problem, and I must really protest against the use of the words "... any half-baked bureaucratic scheme of socialisation," which appears in an editorial on "Co-ordination of Transport" in the current issue.

I am not trying to make a case for or against nationalisation as a political principle, for as an engineer I feel that co-ordination is a thing to be tackled from a technical and organisational angle. However, the words referred to are sweeping in the extreme, and I cannot see that one jot of difference will be made to the running and administration of any firm, including railway companies, if the State buys up all the shares and the firm becomes thereby "nationalised." Is it suggested that the management and staff will at once cease to be efficient? This is to assert that any man who is a servant of the State is necessarily corrupted.

You have always given due praise to those foreign railways that have merited it, irrespective of the form of their ownership, and I would suggest that this vexed question of nationalisation is a subject that could well be left to the political press and not argued in the technical press.

Having travelled much of Europe pre-war and post-war, I cannot see that the Swiss Federal, French National, Belgian, and Italian railways have been ruined by State ownership, and at home the services of the London Transport provide a striking tribute to efficiency under public control.

Let the public decide on the ownership of the railways, and let the railway engineer and administrator seek to improve the system which he serves, no matter who owns it.

Yours faithfully,

G. H. HAFTER

[Mr. Hafter does not appear to have read very carefully the article he criticises, or he would have noted that it stated that it agreed with his views, in that it stated that the problem "must be attacked from the technical and organisational end, rather than from the political and financial side." The words "half-baked scheme of socialisation" were an understatement of the present position, for not even the form of the proposed nationalisation plan is known.—Ed., R.G.]

Weight-Lifting

66, Cheviot Gardens,
Hendon Way, N.W.2. September 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I view with misgiving and apprehension the travesty of truth as depicted in the pictorial advertisement of "The John Bull F.W.M. Petrol Engine" printed on page 37 of your issue dated September 13. The nonchalant manner in which the young lady is carrying a weight of 56 lb. in her right hand makes me wonder what the power of her "straight-left" punch might be.

In my opinion such a young female could not carry a weight of 56 lb. any material distance, and further, in the advertisement regarding a "sleeper-boring and coach screwing machine weighing 112 lb.," this could not be carried easily by two men for a day's work.

May I suggest you try one of your female staff with a weight of 56 lb.

Yours faithfully,

I. E. HIGGINS

[Much depends on the young woman. We are informed that many of the women employed on railway work deal regularly and easily with weights in excess of 56 lb., and in general are considered capable of dealing with weights up to 112 lb., although not necessarily of carrying them.—Ed., R.G.]

Leeds & Selby Railway

The Railway Club, 57, Fetter Lane,
E.C.4. September 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—We read concerning this railway (opened in 1834):—"Originally it was intended to have only two lines of rail-road, and two only have been formed; but land has been purchased for the construction of two others when that increase may be found necessary" ("The Tourists' Companion by the Rail-road and Steam-Packet from Leeds and Selby to Hull," by Edward Parsons, Leeds, 1835, p. 83).

This precaution entailed the following increase over the estimated cost of construction:—

"Widening a space between the two ways for increased security, and extending the bridges for four lines of way £9,000."

Has any duplication of ways in fact taken place?

Yours faithfully,

KENNETH BROWN

Oil-Burning or Pulverised-Fuel Fired Locomotives?

42, Frederick Street,
Edinburgh. September 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The conversion of the 1,260 locomotives to oil firing probably will add some £3,000,000 a year to the cost of railway working. Someone will have to pay, passengers and traders, or railwaymen and shareholders!

Why do our railway companies make no effort to have pulverised fuel firing applied to some of their locomotives in view of the necessity to use coal economically on a long-term policy?

Dust fuel firing is the most efficient way of burning coal in industrial use, especially at locomotive rates of firing. To quote an American authority, "it produces a saving of from 15 to 25 per cent. in coal of equivalent heat value, as compared with hand firing of coarse coal on grates. Powdered coal may run as high as 10 per cent. in sulphur and 35 per cent. in ash and still produce maximum steaming capacity, so that otherwise unsuitable and unsaleable grades of coal may be utilised. It enables us to maintain firebox temperatures

and sustained boiler capacities equivalent to, and exceeding, those obtainable from crude or fuel oil."

Pulverised fuel is made by drying and then grinding a solid fuel as small as the finest flour, and is fired by mixing it with air to form an inflammable "cloud" of coal dust and air which is blown into the furnace. The use of dust fuel was first attempted about fifty years ago for firing ordinary boilers, but with little success. About 1912, however, a group of American engineers adopted the view of *designing the boiler to suit the fuel*.

These engineers developed the large-size boiler which has brought about a revolution in the methods of raising steam on a large scale. It is reported that today one third of all the steam raised in the U.S.A. comes from boilers fired with coal in pulverised form, and in 1938 two out of the 12 million tons of coal used in British electricity generating stations were fired as pulverised fuel.

In several countries, notably the U.S.A. first and then Germany, over 100 locomotives have been fitted with equipment to try out pulverised fuel. Some American engineers claimed their results were successful, and so did the German research workers.

However, none of these trials has been really satisfactory, for the simple reason that the *ordinary* locomotive boiler has been used, as in the first non-successful trials in stationary steam practice.

It may, therefore, be said that, in spite of its known advantages, there have been no adequate attempts to apply pulverised fuel firing to the locomotive, as the ordinary locomotive boiler is quite unsuitable for its use, and another type would be required just as in other steam practice. In connection with locomotive work, therefore, the field is quite open and really untouched.

There are sufficient data to justify the opinion that if all the steam locomotives in this country had been fired satisfactorily with pulverised fuel in 1938 (the last normal year), the total costs of railway working would have been lower by some 6 to 8 per cent.

The Minister of Fuel and Power recently has been urging everybody to save coal on both short and long-term policies, and the directors of the railway companies have claimed that the present method of working is more enterprising than nationalisation could be.

As the railway locomotives in this country consume approximately 13 to 15 million tons of coal each year they could do something to achieve both ends by having pul-

verised fuel firing applied to the steam locomotive. The possible reduction in both the quantity of fuel required, and the cost, should have its decided attractions in these days.

I am, Sir, etc.,

SYMINGTON MACDONALD

[An editorial article dealing with this subject is on page 343. The cost of conversion to oil firing was dealt with before the Charges Consultative Committee the proceedings of which are reported on page 363, and an editorial comment on which is on page 344.—Ed., R.G.]

L.N.E.R. Handbook of Statistics

London, N.W. September 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I was glad to secure a copy of this booklet, which you reviewed in your September 20 issue. It led me to examine the summary table of 1945 statistical returns again, and to compare it with the 1938 returns. As a result, I am sure you are right in urging that the Ministry of Transport should resume the publication of the annual railway returns on the pre-war basis, as far as practicable. The 1945 summary is skimpy, and some of the changes made in the method of compiling these statistics upset comparison with 1938 and earlier years. For example, the 1945 summary gives tonnage (excluding free-hauled traffic) for all railways, but net ton-miles for the main lines only (including free-hauled traffic). The two sets of figures are not correlated as was the case before the war, when tonnage, net ton-miles and the derivative statistics covered all railways and included free-hauled traffic.

The prefatory notes to the summary are curt. We are told that the main-line companies' tonnage figures for 1943 to 1945 have been increased by an estimate to cover minor lines, but it is not stated whether a similar adjustment has been made in the ton-mile statistics. The 1938 ton-mileage is quoted as 16,266 millions, and contrasted with a total of 22,023 millions for 1945. The first figure does not include 406,000,000 ton-miles worked over joint lines and minor railways; it is not clear what the second figure represents, though there is an impression abroad that any statistics now compiled by the main-line companies cover particulars for joint undertakings. It may be that the correct comparative figures are 16,672 millions for 1938 and 22,023 millions for 1945, but all doubts would be removed if the Ministry would issue full railway returns.

Yours faithfully,

RUSTICUS

Publications Received

Timber Seasoning. Published by the Timber Development Association Limited, 75, Cannon Street, London, E.C.4. 7 in. x 5 in. 113 pp.—In the introduction to this useful little book, it is explained that correct and economic timber drying or partial drying is based on scientific research, a science only recently developed. Measurement by weight of the moisture content per cent. is the recognised standard test, but the principles and recommendations embodied in this work apply to timber in general and not necessarily to individual species. Methods of seasoning and the shrinking of timber in the process are described in some detail. In air seasoning the size and layout of the yard, the size of the piles, foundations stacking, and roof are discussed. There is special reference to the seasoning of sleepers and also to splitting and checking and to staining. Kiln seasoning and the types of kiln used, together with the positions and equipment of the fans required for air circulation are fully explained, as are the heating coils and steam sprays and ventilation. A chapter is also devoted to the method of treatment of timber in a drying kiln and the control required, governed by hygrometers or other instruments. Various schedules have been standardised for the many varieties of timber to be seasoned and these are enumerated. Three appendices dealing with (i) summer felling, (ii) steaming and seasoning of English beech, and (iii) various methods

of moisture content determination complete this valuable handbook, which contains many excellent diagrams and tables, and covers the whole subject admirably.

Titans of the Track: London Midland & Scottish Railway, No. 2. Commentary by Cecil J. Allen. London: Ian Allan Limited, 282, Vauxhall Bridge Road, S.W.1. 6 in. x 4 in. 64 pp. Fully illustrated. Paper covers. Price 2s. net.—The first booklet of this series dealing with the L.M.S.R. appeared in January, 1945, and consisted mainly of illustrations with a brief introductory text. Its successor, however, carries right-hand page illustrations only and accordingly gives Mr. Allen space for an able commentary on Great Britain's largest system. It begins with a summary of its development and goes on to describe principal engineering features, locomotives and rolling stock, stations, and the steamer fleet.

Engines of War. Guy N. Wildish. London: Ian Allan Limited, 282, Vauxhall Bridge Road, S.W.1. 8 in. x 5 in. 24 pp. Illustrated. Paper covers. Price 1s. 6d. net.—This booklet describes and illustrates the locomotives and goods wagons used during the war by the Ministry of Supply and the U.S. Army Transportation Corps, and those built to war standards for Colonial railways. Most of the locomotives were new types specially designed to meet war conditions, but the exceptions were the Dean 0-6-0s and Robinson 2-8-0s—for both of which it was a second "call-up"—and the Stanier 2-8-0s, adopted by

the Government in 1940. Details are given of two types of American diesel-electric engines and of a small W.D. diesel locomotive, the first type to be landed in Normandy. The goods stock illustrated comprises acid-tank, ore, coal and general service, and well and flat wagons.

Mineral Railways.—We regret that in our review of "Mineral Railways," by Mr. R. W. Kidner, in our September 13 issue, the address of the publisher was incorrectly given; the offices of the Oakwood Press are at 30, White Horse Hill, Chislehurst, Kent.

Soho Foundry. By W. K. V. Gale. Birmingham: W. & T. Avery Limited, Soho Foundry. 8½ in. x 5½ in. 49 pp. Illustrated. Gratis.—The aim of this fascinating brochure is to give a brief historical survey of the Soho Foundry, and its association with such famous names as Matthew Boulton and James Watt (each of whom forms the subject of a chapter). William Murdock and his connection with the partnership is dealt with in a further chapter, and the final one deals with the Soho Foundry under W. & T. Avery Limited, the present owner, which took over in 1895. There is a valuable chronology, a list of the Soho undertakings, and a useful short bibliography. The brochure is well worthy of permanent preservation, and Avery's are to be congratulated on having produced it in connection with the 150th anniversary of the opening of Soho Foundry.

The Scrap Heap

LINER ON THE LINE

The Southern Railway recently conveyed between Nine Elms and Bournemouth a model of ss. *Queen Elizabeth*, packed in a crate 22 ft. 6 in. long, 6 ft. 4 in. wide, and 9 ft. high, the whole weighing 2 tons and valued at £5,000. On arrival at Bournemouth the model was placed on exhibition.

"Reserved for Privilege"

"How long the night seems to one kept awake by pain. . ."

As the night trains to Scotland rattle over the points at Euston, the occupants of the ordinary coaches examine their fellow passengers with bleak hostility. For the next ten hours they will sit together in common suffering, while each attempts to win a few hours' sleep during the course of the journey north.

If by some malign stroke of fortune one of the travellers snores, or if another is a determined reader of thin-paged books and rustling newspapers, or if the devoted wife of a third has carefully prepared him an elaborate three-course supper whose every morsel seems packed in its own particular wrapping of double-thickness sandwich paper, then the whole compartment is condemned to sleepless hours of misery.

Elsewhere on the train the possessors of sleeping berths are already unpacking their pyjamas ready for a comfortable night's rest. For them the night holds no terrors. At the end of the journey they will awake refreshed and ready for a normal day's work. But by what right do they sleep while others suffer torment?

Some were far-sighted and booked many days ahead. Yet 16 months after the end of the war in Europe one-quarter of the first class sleepers and a fifth of the third class sleepers are still reserved for Privilege. Mr. Alfred Barnes, the Minister of Transport, considers it necessary to prevent the general public from using these berths so that "people travelling on urgent business of national importance" may take priority.

A recent analysis showed that 68 per cent. of these priority sleepers were allocated to business men, 14 per cent. to M.P.s, 10 per cent. to members of the Services and 8 per cent. to Civil Servants. It must be a baffling task to decide between rival applications for berths sent in by these various categories.

Each claim must be endorsed "urgent" by the department concerned with the applicant's work before it is accepted. When conflicting bids arise, responsibility for making the final choice rests with an Assistant Secretary in the Ministry of Transport, "acting on the advice and guidance of sponsoring departments."

By what process of thought, intuition or blindfold pin-sticking does this £1,250 a year civil servant make up his mind? In what order, for instance, would he, and the sponsoring departments, place a builder, a distiller, an air marshal, a trade union boss, a cotton manufacturer and a banker? Clearly, they might all be equally deserving of a bed; but only one will be granted the opportunity for "innocent sleep, sleep that knits up the ravel'd sleeve of care."

Of course, the system is preposterous and iniquitous, and an end should be made of it. It encourages favouritism. It is unfair to the ordinary traveller. It is a piece of privilege. And privilege, in whatever form, has no place in a democratic country.—From "The Evening Standard."

RAILWAY MEALS

The mere provision of food on railway journeys seems a considerable boon after the stringencies of wartime travel, and for some time at least travellers will not be too critical of its quality or standard of cooking. But in due course, as rationing is relaxed and ultimately abolished, it is to be hoped that the railway companies will make a genuine effort to raise the standard of railway meals. In pre-war days it was variable. It is true that one group of restaurant cars once enjoyed a reputation which moved a railway enthusiasts' club of Oxford undergraduates to hold its terminal dinners on board the express from Oxford, with the toasts and speeches on the return journey; and the varieties and flavour of the biscuits and cheese which concluded the lunch on the L.M.S.R. cars running out of Glasgow are astonishing to look back to. On the other hand, there are memories of a peculiarly depressing breed of fish once succinctly described as comprising "an eye, a bone, and a piece of wet black mackintosh."—From "The Glasgow Herald."

100 YEARS AGO

From THE RAILWAY TIMES, Sept 26, 1846

LONDON AND SOUTH-WESTERN RAILWAY.—Alterations of the following Trains for the Winter Season.—On and after the 1st of October the Trains now leaving Nine Elms at 8 a.m. and 4 p.m., will leave at 7.30 a.m. and 3.30 p.m.
The Trains now leaving Gosport at 9.30 a.m., and Southampton at 10 a.m., will leave Gosport at 9 o'clock a.m., and Southampton at 9.30 a.m., being half an hour earlier at each Station up and down.
The Trains now leaving Nine Elms at 6.30 p.m., Gosport at 6.30 p.m., and Southampton at 7 p.m., will be discontinued.

For full particulars see Time Tables.

By order,

P. LAURENTZ CAMPBELL, Secretary.
Nine Elms, September 25, 1846.

A U.S. Railway P.R.O.



Mr. A. R. L. Ross, brakeman on the New York Central Niagara-Buffalo route, is described in "Trains" as "a born entertainer and publicity man," and is known as "Popeye" to the passengers, to whom he acts as unofficial Public Relations Officer

Undecided Travelers

Now and then you may be questioned by a traveler who can not seem to make up his mind about which train to take, whether or not to check his grip, or some similar problem. Perhaps he is merely confused, or he may lack information. Be careful not to show impatience. Try to help him clarify his thoughts and reach a decision. For here, again, tact makes friends while brusqueness makes enemies.



[From "Company Manners" issued by the New York Central System]

NEXT WEEK'S RAILWAY CENTENARIES
Stamford to Peterborough (12½ miles), Midland Railway, opened October 2, 1846.
Seamer to Filey (6 miles), York & North Midland Railway, opened October 5, 1846.
Ashton to Stalybridge (1½ miles), Manchester & Leeds Railway, opened October 5, 1846.

NAMED TRAINS IN THE U.S.A.—6

Name	Passenger Railway	Scheduled run
Pioneer ...	Missouri Pacific	Houston—Brownsville
Pocahontas ...	Norfolk & Western	Cincinnati—Norfolk
Quaker ...	N.Y., N.H. & H. Boston—	Philadelphia
Red Arrow ...	Pennsylvania	New York—Detroit
Robert E. Lee ...	Richmond, Fred. Washington—	Birmingham
Royal Palm ...	ericksburg & Potomac: Seaboard	
Scenic Limited ...	New York Cen-Chicago—Detroit	—Miami
Shenandoah ...	Denver & Rio Denver—Ogden	
Sooner ...	Grande Western	
Southern Belle ...	Baltimore & Chicago—Washington: Read-ton—New York	
	ing: Central of New Jersey	
	Missouri—	Kansas City—
	Kansas—Texas	Oklahoma City
	Southern: Kansas City	Kansas City—
	Louisiana & Arkansas	New Orleans

Name	Goods Railway	Scheduled run
North Star ...	Boston & Maine Boston—Wells	River
Oriole ...	C., St. P., M. & Itasca—Altoona	
Overniter ...	Florida East Coast Jacksonville—	Miami
Packer ...	Chicago & North Council Bluffs	Proviso
Pig Skin ...	Reading	Harrisburg—
Purple Emperor	Pennsylvania	Enola—Buffalo

Mr. Dalton expects industry to plough back profits into business. Here is an excellent opportunity for the Government to practise what it preaches by handing back to the railways the £200,000,000 profit made during the war.

With this sum a considerable amount of development and improvement can be paid for. Fares and rates might also be reduced instead of being increased, with the consequent danger of inflation.—Mr. Herbert Spencer in a letter to "The Daily Telegraph."

RAIL ENGINE LOST FOR 5 MONTHS

The French National Railway Company announced in Paris recently the loss of a railway engine which "drove out of the shed at Hausbergen on its way to St. Dizier, in Lorraine, on April 11, and has not been seen since. Railway workers have been instructed to make a thorough search for the engine.

The evening paper, *Paris Presse*, commenting on the loss, said: "A toy of this kind is not easily lost unless a new type of gangster specialised in this kind of theft."

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Net Receipts Still Above Pre-War

Combined net earnings of the Canadian Pacific and Canadian National Railways for the month of July, and for the first seven months of this year, amounted to approximately only half those in the corresponding period a year ago, according to figures based on the individual monthly reports of the two systems. Combined net earnings in July were \$7,008,000, compared with \$12,980,000, in July last year, a decrease of \$5,972,000. Aggregate combined net earnings during the first seven months of this year totalled \$34,602,000, compared with \$69,598,000 in the same months of 1945, a decrease of 50.3 per cent.

On both railways, however, the aggregate net receipts were substantially in excess of the immediate pre-war comparisons, and on the C.N.R. were also slightly greater than the 1929 peak of \$22,982,000, although the Canadian Pacific total was only about half the 1929 total. Combined aggregate net receipts for the first seven months totalled \$34,602,000 compared with \$5,687,000 in 1939, with a deficit of \$2,589,000 in 1938, and with \$17,792,000 in 1937. In 1929 the seven-month combined total was \$43,964,000, or \$9,362,000 greater than in the first seven months this year. The record for the period was set in 1943, at the height of the wartime demand for railway services, when the total was \$78,764,000, so that the net figure for this year has shrunk to less than half that peak.

UNITED STATES

New Seaboard Air Line Company

On August 1 the Seaboard Air Line Railroad Company took over operation of the system of the former Seaboard Air Line Railway Company, which had been in receivership since December 23, 1930. The Chairman of the new company is Mr. Henry W. Anderson, and the President is Mr. Leigh R. Powell, Jr., both of whom had been acting as receivers under orders of the federal courts for the Eastern District of Virginia and the Southern District of Florida. On conclusion of the receivership, Mr. Powell recalled that even in the previous trying conditions, the Seaboard had been the first railway in the South to adopt such innovations as air-conditioned coaches and diesel-electric locomotives for main-line service. Removal of restrictions inseparable from receivership would enable the modernisation programme to be accelerated. The system comprises approximately 4,200 miles of line in the States of Virginia, North Carolina, South Carolina, Georgia, Alabama, and Florida.

MEXICO

Diesel-Electric Freight Locomotives

Orders for diesel-electric locomotives from the United States as part of the National Railways modernisation programme were reported in *The Railway Gazette* of April 12. The first two of 14 diesel-electric locomotives for freight service have now been delivered by the General Motors Corporation, and are being used on trains of oil tank wagons between Tampico and San Luis Potosi, a journey of 274 miles with gradients 1 in 33. The locomotives are of the two-unit

type powered by two 1,350-h.p. engines, and equipped with dynamic brakes for mountain operation. It is expected that two of these engines will be able to handle 2,000-ton trains over the steepest gradients. Operation of the 50-mile section between Tamasopo and Cardenas, where the heaviest gradients and curvature occur, will be facilitated. With steam haulage, frame breakages were frequent, and at one time it was by no means unusual to have 600 to 900 cars immobilised on this section on account of shortage of motive power.

BRAZIL

Rede Mineira Viação Electrification

Electrification continues on this railway on the branch line from Barra Mansa to the port of Angra dos Reis. Posts and overhead transmission lines are already installed as far as the village of Lidice. The section between Cruzeiro and Caxambu, also, is to be electrified (see *The Railway Gazette* of July 19.) Work on the widening of the gauge from 76 cm. is to be begun immediately. Power for this section will be generated by a diesel plant until the power station at Itutinga is erected.

Railway Construction by the Army

For 17 years the army has played an active part in the construction of railways in Brazil. The line from Passo do Barbosa to Jaguarã, joining the Viação Férrea do Rio Grande do Sul to the Uruguayan railway system, was begun by an army railway battalion in February, 1929, and finished in December, 1931. It is 62 km. long, and of metre gauge, and includes a bridge over the river Arroio Grande with a span of 150 m.

Another line, Jaguaribe-Santiago-S. Borja, 224 km. long, was begun in 1932 and finished in 1937. This line has 34 reinforced concrete structures, measuring 2,032 m., and 468 culverts.

A line from D. Pedrito to Sant Ana do Livramento, extending for 101 km., and including 31 concrete structures, 250 culverts, and 19 station buildings, was begun in 1934 and finished in 1944.

Apart from these lines the 1st and 2nd Railway Battalions are now engaged on the following construction:—

Santiago-San Luiz-Cerro Azul line (162 km.): begun in May, 1937, and completed up to km. 131. Reinforced concrete structures on this line include bridges over the Rivers Icamaguam, Piratini, and Pirajú, measuring 187 m., 331 m., and 154 m. respectively; and five viaducts, three 99 m. long, and the other two of 115 m. and 287 m. Buildings include stations at Santiago, S. Luiz, Carovi, Tupanduva, Charruas, Bossoroca, Petini, and Serrinha, and 14 groups of houses for permanent way workers.

Pelotas-Santa Maria (Arroio do Só) line (400 km.): This line was begun in March, 1940, but so far only 22 km. have been completed. A further 50 km. of earthworks are ready and the rest has been surveyed. Bridges over the Rivers Pilocinhas, Arroio do Oro, and Arroio Cadeia are finished, and other structures include a viaduct 59 m. long, a tunnel, 180 m. long, and two stations.

Rio Negro-Bento Gonçalves line. This line has a projected length of 600 km., of which 200 km. in the State of Rio Grande

do Sul are being built by the 1st Railway Battalion; the remaining 400 km., in the State of Santa Catarina, are to be built by the 2nd Railway Battalion. At present the metre gauge is being used though provision is being made for conversion to broad gauge, in accordance with the National Highways Plan, as and when necessary. Thirteen kilometres are already finished in the State of Rio Grande do Sul, and 64 km. in Santa Catarina.

NEW ZEALAND

Accident to Goods Train

During a recent storm a goods train which was proceeding through the precipitous Manawatu Gorge, North Island, in the early morning struck a slip and the engine and three vans rolled into the river. The driver and fireman were killed. The locomotive was of the new "K" type, and it is doubtful whether it or the vans can be salvaged. The gorge, through which runs the main line to the East Coast, was blocked for two days.

WESTERN AUSTRALIA

Rail and Road Co-ordination

The Minister for Railways (the Hon. W. M. Marshall) has announced that consideration is being given by the Government to the acceleration of passenger transport in isolated districts by the use of road buses. The bus services will be run in conjunction with and as part of rail services, and will act as feeders to the railways. Particular consideration has been given to passenger transport in the south-west corner of the state, as well as to those areas where transport is tedious because of the roundabout journey necessitated by rail on cross-country branch lines.

The Minister said attention had been given to the types of buses to be used and the routes they would travel. A scheme was practically completed, but an unfortunate feature was the acknowledged difficulty of getting suitable buses in a reasonable time. The Government felt it was essential that people in isolated centres should get services more in keeping with the times, removing their isolation and enabling them to travel more quickly and frequently.

INDIA

Survey for Railway in Cutch

The Railway Board has sanctioned an engineering and traffic survey to be carried out by the North Western Railway for a broad-gauge line, approximately 300 miles long, from Viramgam on the B.B. & C.I.R. through Cutch State to a point on the N.W.R.

KENYA & UGANDA

Operations of Produce and Commodity Controls

In East Africa the movement of agricultural produce and of some imported articles such as motor vehicles, tyres, motor spares and cotton piece goods was controlled during the war. In the case of agricultural produce the operations of the controls became more cumbersome and complicated as famine conditions became more widespread. The conditions governing the transport of foodstuffs involve the issue of numerous instructions to the Asian or African railway staff who, in addition to the sufficiently complicated nature of their ordinary work, have now to remember

whether any particular consignment tendered is properly covered by a permit issued by a properly authorised person, and to satisfy themselves that it is travelling within the area and to the destination covered by the permit.

SOUTH AFRICA

Road Motor Services

More than 500,000 spare parts for the lorries and buses used by the South African Railways Road Motor Services are now being manufactured by the railways in the Union, and with the improvement in supplies from overseas it is becoming possible to meet insistent public demands to a progressively increasing extent. Designs for luxury buses, which are to be used for tourist traffic, are well advanced. It is proposed to build six of these vehicles departmentally. Work has already begun on the prototype. Engines and other parts which have been released by the Department of Defence since the suspension of armoured car production, are being used.

New Vehicles

During the last 12 months it was possible to place in service only 45 light 25-seat passenger vehicles and 700 light goods vehicles of from 3- to 4-ton capacity. At present 54 light passenger vehicle chassis are on hand for body-building, and 170 heavy chassis of 10-ton capacity (for the conveyance of goods) are on order from overseas. The first 25 have been shipped. Bodies are being built for these lorries and will be fitted as soon as the chassis arrive. Tenders are now being invited for the supply of 34 double-deck passenger vehicles, 44 single-deck passenger vehicles, and 97 dual-purpose vehicles.

Applications for additional road motor services are constantly being received, and at present 83 applications are under investigation. The total route-mileage now operated is 20,016, of which 17,988 is in the Union and Swaziland, and 1,871 in South West Africa, and 157 miles are operated for the Rhodesia Railways.

Central Training Institute

South Africa's first "railway college," the Central Training Institute, which has been housed temporarily in the former Air School buildings at Kroonstad, celebrated its first birthday in August with a series of sporting events, a concert, and a cinema show. Since its establishment it has trained 1,000 railwaymen in various branches of railway work, and is training 700 more. The Minister of Transport, Mr. F. C. Sturrock, has approved a new course for apprentices under the C.O.T.T. scheme.

Passenger Traffic in Witwatersrand

In reply to criticisms of the congestion and unpunctuality of the local services, the railway administration states that in the past year the number of local passenger journeys has risen by millions, without a single extension to platform space or rolling stock. Passenger journeys on suburban trains in the Witwatersrand area increased by 4,709,666 in the six months ended March 31, 1946, as compared with the corresponding period last year. The grand total for this period reached the new record of 43,019,550. First class passenger journeys increased by 832,911, second class by 578,300, and third class by 3,298,754.

Last April was a difficult month, in which suburban journeys on the Rand totalled 8,028,142, an increase of 1,539,227

over April of the previous year. No additional coaches, however, have become available, in spite of strenuous efforts on the part of the administration to speed up deliveries from overseas. Every coaching set is now in use, and as many additional trains as possible are being operated in an effort to meet public requirements.

The lack of platform space at Johannesburg remains one of the major disabilities, but since the taking over of the Wanderers ground this position may improve. The laying of additional tracks and the building of urgently needed platforms is being pushed ahead speedily.

Five-Day Week

The South African Railways & Harbours Administration has appointed a committee to investigate the practicability of introducing a five-day working week for artisans and other grades of staff directly affected. Mr. E. H. Bambury, a member of the S.A.R. Service Commission, has been appointed Chairman.

The committee will report on the practicability of the scheme in mechanical and other workshops, on district duty, and in other spheres of railway work. The extent to which the introduction of a five-day working week would necessitate the application of a similar working week to other grades of staff will also be investigated.

The committee will report also on the manner in which a five-day working week should, in its opinion, operate, having due regard to workshop output and traffic requirements, and whether any change for any section or sections of the staff concerned should simultaneously be introduced with respect to establishing wage rates on any other basis than that now in operation, in vacation and sick leave, or in any other service conditions.

In the conduct of its investigation and the framing of its recommendations, the committee will have regard to the facts that a reduction in the existing total hours of duty is not contemplated for any grade of staff concerned, and that an increase in basic wages, weekday overtime, and work performed on Sundays, is not contemplated.

Staff associations and individual members of the staff concerned will have an opportunity of giving evidence.

EGYPT

Extensive Modifications in Cairo Area

Extensive track modifications and workshop transfers are to be carried out in the Cairo area, at an estimated cost of about £1,500,000. The scheme is as follows:—

Removal of the carriage and electrical shops from Anaber to a site on the west side of the line between Cairo Cabin 4 and El-Tawdib.

Removal of the locomotive running shed from Anaber to a site south of Farz Yard.

Laying of up and down local lines between Cairo Station and Mit Nama block post.

Laying of up and down barrage and up and down Bilbeis lines between Mit Nama and Caluib Junction.

Provision of a direct connection from the east end of Farz Yard to Cairo Station, serving the new locomotive running shed.

Provision of a direct connection from the east end of Farz Yard, burrowing under the main lines between Cairo Cabin 4 and El-Tawdib, for trips going to and from Bulak Dakrur.

Construction of a burrowing junction between Mit Nama and Caluib for the proposed Barrage Lines.

The enlargement of Farz Yard.

The scheme also provides for a new

and separate station for the Upper Egypt lines at Cairo; an enlargement of the circulating area of the existing passenger station at Cairo; and the removal of the E.S.R. Stores Department from Saptia to Abbassia.

FRANCE

The Paris Metro

The Metro has been the only means of mass passenger transport in Paris to have worked throughout the war, although faced with increasing difficulties, limitations and restrictions. The daily average of passengers is 5 million, equal to the pre-war average for Metro and buses combined. Early in the war many stations in the centre of the city were closed, but this was no great inconvenience as they are closely spaced.

Nevertheless, the longer runs between stations still open caused higher wear and tear to stock. During the occupation, shortage of power caused yet more stations to be closed, but now only a few stations remain closed and the service is more frequent even than before the war. Overcrowding of trains and platforms is great, particularly in the rush-hour. Present second class fares are double and first class treble, those in 1938, but this does not cover increased expenses, mainly in wages and cost of materials.

Although only a few existing lines are to be extended, a second underground system—to be called "Métro express" or "Métro régional"—is envisaged. It would connect with the Metro only at a few transfer stations and would link the Paris suburban lines of the S.N.C.F. A large central station would be built at the Châtelet, now an important Metro interchange station.

CZECHOSLOVAKIA

Prague—Belgrade Through Service

Regular through trains for civilian traffic between Prague, Budapest, and Belgrade were resumed on August 1, after a lapse of more than six years. Although through trains were run during the war, they were mainly for German officials and military personnel, civilian accommodation being limited. At present the service consists of four trains each way a week. Through goods traffic has also been restored, but is limited temporarily to parcels consignments.

Improving Transport Conditions

More abundant supplies of coal and larger reserves of rolling stock have enabled passenger railway transport in Czechoslovakia to be expanded considerably in recent months. In addition to the increase and improvement in international express connections, the number of trains in the home services now in operation has reached about 70 per cent. of the total in service in 1938. Goods train services have reached 90 per cent. of the total obtaining in 1937.

The goods transport improvements have been made possible by the greatly increased output of the railway workshops, in addition to the gift from U.N.R.R.A. of 863 goods wagons. The Czechoslovak wagon-building industry has so far delivered 2,152 vehicles, and a considerable number of breakdown and service vehicles has been returned from abroad. As far as railway reconstruction is concerned, 83 per cent. of the 740 railway bridges which had been wrecked in the Czech provinces alone had been reconditioned up to the end of May.

The Progressive System of Workshop Training

Training of apprentices in the main locomotive and carriage and wagon works of the L.M.S.R.

By E. J. Larkin, A.M.I.Mech.E., M.I.Loco.E.

Staff Assistant to the Chief Mechanical Engineer, L.M.S.R.



An apprentice at work in the miscellaneous brasswork section of the machine shop

INCREASING public attention has been directed to the need for vocational training and the continuance of education beyond the present recognised school-leaving age. In a large engineering department of a railway company, having more than 40,000 employees engaged in a variety of work, provision has to be made for recruiting several hundreds of apprentices every year, to be trained to become craftsmen in many skilled trades.

Facilities Available

In turn, all must be encouraged to take advantage of facilities available at technical colleges, to obtain such certificates as will enable the company to recruit qualified men to fill vacancies for engineering assistants, foremen, planning engineers, inspectors, draughtsmen and technicians, necessary to plan and carry out mechanical and electrical engineering work in accordance with modern standards.

TABLE I—TYPICAL SHOP

Section of work	Normal no. of apprentices required	Period on section
A	4	$\frac{1}{4} \times 60$ months = 20 months = 1-8/12 years
B	6	$\frac{1}{2} \times 60$ months = 30 months = 2-6/12 years
C	2	$\frac{1}{3} \times 60$ months = 20 months = 10/12 years
Total...	12	$\frac{3}{4} \times 60$ months = 60 months = 5 years

Rate of entry into shop = $\frac{1}{5}$ months = 1 apprentice every five months, which will ensure that the number required on each section is consistently maintained

The progressive system of workshop training was first introduced at the Derby Locomotive Works in 1932, and has since been extended to the other main works of the company. This system deals, primarily, with two classes of apprentices:—

(1) Trade apprentices, who enter direct from school, and are apprenticed to a particular trade for a normal period of five years, in all cases terminating at 21 years of age.

(2) Engineering apprentices, who have acquitted themselves well on practical work in the shops and made satisfactory progress in technical studies, or who are recruited direct from a secondary or public school, after gaining the School Certificate or Matriculation; these are admitted up to 18 years.

Engineering apprentices receive an all-round engineering training, and not only pass through the principal shops, but also receive instruction at part-time day technical courses, with the result that, on completion of their apprenticeship at 21, they are suitable for work in the production planning office, drawing office, etc.

The progressive system of workshop training has as its principal objects:—

(1) To determine the number of apprentices who can be usefully employed in each trade.

(2) Having determined (1) to determine the appropriate proportion of time which apprentices in each trade shall spend on each section of work.

(3) To maintain the required production by ensuring that the agreed number of apprentices required on a particular section is continuously made available, thus ensuring a normal flow of work.

(4) To control an even rate of engagement of apprentices into each trade, and thus ensure a systematic flow from section to section within each shop, so giving each an equal chance of gaining experience.

(5) To maintain a complete record of training, covering each apprentice from engagement to 21 years of age, thus enabling future employment to be considered in conjunction with records of technical attainment, ability, and conduct during apprenticeship, which have been systematically recorded.

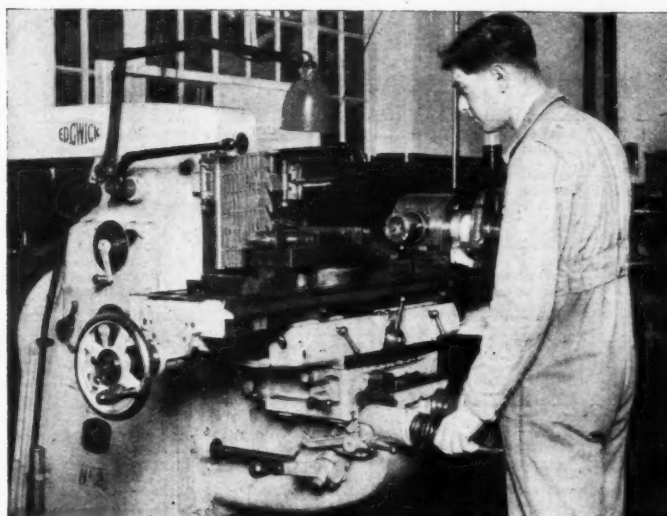
TABLE II—TYPICAL SHOP TRAINING COURSE

Horwich Locomotive Works : Training Scheme for Trade Apprentices employed in the Joiners' Shop

Code Ref.	Particulars of work done on section	Period on Section : Years	Remarks
Office	General utility ...	9/12	Taken direct from school and to be subsequently transferred to an apprenticeship
J1	Bench work and maintenance of buildings	Apprentice Joiner 1-8/12	Taken direct from school or from an office at 16 years or transferred from Section S1 at 16 years
J2	Roof repairs and shuttering for concrete	1-8/12	Transferred from section J1 at 17-8/12 years
J3	Making ladders, frames, wood turning, and general joiners' work	1-8/12	Transferred from section J2 at 19-4/12 years
	Total ...	5	

For the successful working of the scheme it will be necessary to start one apprentice on section J1 at intervals of 20 months

Although adjustments are necessary from time to time in the number of appren-



An apprentice fitter milling lathe tools in the tool room section of the machine shop

tices required on each section, according to fluctuations in volume of work, the complement at each works, and the quota in each section, are related to a regular flow of work.

Trade apprentices are not allocated to sections merely for the sake of training; each is required to be a productive unit throughout his apprenticeship. Consideration should, first, be given to the work an apprentice can perform, and, having decided on this, one must see that he is always available for such work, the sequence of training being arranged in accordance with the practical training value of the work.

Practical Efficiency

It will be clear that, if any section of work is beyond the capacity of a trade apprentice, there is not much point in his being placed on it if he is to be regarded merely as a looker-on; thereby, little of practical value would be learned by the individual, and, so far as the employer is concerned, it would be uneconomic because it would involve the employment of unproductive apprentices.

The system ensures that, where piece-work prices are set for a job for an apprentice at a certain age and rate, an apprentice of that age and rate is available on the particular section as the work arises, thus avoiding the need for placing an adult on the job.

The system provides that each apprentice, on entering a shop, shall have an equal chance of gaining experience, and to do



An apprentice fitter setting driving wheels on dead centres on a new 2-8-0 freight engine in the valve setting section of the erecting shop

this, it is necessary to allot a definite time for him to work in a particular section; and the length of time allowed must depend on:—

(1) The number of apprentices on each section of the work.

(2) The relationship of this number to the total number of apprentices in the shop.

(3) The total time to be spent in the shop.

The period of training on each section is thus directly proportional to the number employed on the Section compared

TABLE III—L.M.S.R. LOCOMOTIVE WORKS, HORWICH. STANDARD WORKSHOP COURSE FOR ENGINEERING APPRENTICES

	Trade apprentice	Higher secondary school	Public school		
	Qualification for admission :				
	Age : Over 16 and under 18 years				
	Educational : Matriculation or London University General Schools Certificate				
Month	1st year	2nd year	3rd year	4th year	5th year
1st	Machine shop Centre lathes	Brass or iron foundry Brass castings or iron details	Fitting shop Shop maintenance	Erecting shop Frame repairs	Erecting shop Wheeling and Valving
2nd	Centre lathes	Brass castings or iron details	Tool room Dieheads, jigs tools and fixtures	Motion	Motive power depot Engine and tender repairs, breakdowns
3rd	Centre lathes	Brass castings or iron details	Dieheads, jigs tools and fixtures	Motion	Engine and tender repairs, breakdowns
4th	Centre lathes	Brass castings or iron details	Dieheads, jigs tools and fixtures	Boiler refit	Engine and tender repairs, breakdowns
5th	Centre lathes	Fitting shop Bench work, motion, pistons and crossheads	Boiler shop Boiler stays and inspection	Boiler refit	Millwrights shop Repairs to hydraulic jacks, capstans and cranes
6th	Small brass lathes	Bench work, motion, pistons and crossheads	Boiler stays and inspection	Boiler mounting	Repairs to hydraulic jacks, capstans and cranes
7th	Combination turret lathe	Bench work, axleboxes, coupling rods and connecting rods	Boiler stays and inspection	Boiler mounting	Repairs to hydraulic jacks, capstans and cranes
8th	Combination turret lathe	Bench work, axleboxes, coupling rods and connecting rods	Wheel shop Wheels and crank axles	Testing of injectors, ejectors and safety valves	Central materials inspection bureau
9th	General turning, tool room	Bench work, brass work, injectors, ejectors and lubricators	Wheels and crank axles	Welding	Central materials inspection bureau
10th	General turning, tool room	Bench work, marking out	Wheels and crank axles	Brakework	Erecting shop New engine building
11th	General turning, tool room	Shop maintenance	Erecting shop Stripping	Brakework	New engine building
12th	General turning, tool room	Shop maintenance	Frame repairs	Wheeling and valving	New engine building

In all cases the apprenticeship terminates at 21 years of age. In no circumstances will the periods be varied. When the apprentice starts his course after attaining 16 years of age, it will be necessary for some sections of the machine shop and erecting shop, and for certain other shops, to be entirely omitted

is required to be a productive unit while attached to each section.

The system is described as progressive because the apprentices systematically move

Experience has shown that efficient superintendence of the training of trade and engineering apprentices is best carried out by one of the technical assistants to the Works Superintendent. This includes selection, interviews, the determination of quotas, transfers, and encouragement to

THE PROGRESSIVE SYSTEM OF
WORKSHOP TRAINING.

THE PROGRESSIVE SYSTEM OF WORKSHOP TRAINING.

TINSMITHS SHOP.

SECTION	NORMAL QUOTA	ACTUAL NUMBER	NAMES																				
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TOTALS

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A typical shop schedule board

from section to section. Although the scheme, as a whole, is largely self-organising, it must be reviewed from time to time as the amount of work on one or other sections may alter, with a consequent need for increasing or decreasing the number of apprentices required, and its effect on the period of training which can be allotted to particular sections. Only in the case of engineering apprentices, who are limited in number, is it possible to give specialised courses, a typical case being illustrated in Table III.

Here, again, the engineering apprentice

TABLE VI

EDUCATIONAL ATTAINMENTS		E.R.O. 64002/2 (back)
Date	Technical College or Institute Attended	Particulars of Approved Courses Taken Certificates held

MEMBERSHIP OF TECHNICAL INSTITUTIONS		
Date admitted	Name of Institution	Grade

PARTICULARS TO BE ENTERED IN RESPECT OF COMPLETION OF APPRENTICESHIP

Date apprenticeship completed

Appearance

Personality

Recommendations :

Interviewed by.....

Date

Report Form submitted to C.M.E.



An apprentice finishing an outside carriage door

attend regularly appropriate technical courses of instruction.

Engagement routine, including character references, medical examinations, and the issue of general rules, is dealt with by the staff section of the Works Superintendent's Office. Transfers are notified by the Technical Assistant to the Staff Office, the latter handling all correspondence.

A Master Schedule Board, Table IV, is

situated in the office of the Assistant to the Works Superintendent in charge of apprentice training. The purpose of this board is to ensure proper regulation of the required number of apprentices, the engagement of apprentices at the planned rate in each shop, and transfer from shop to shop where prescribed in the scheduled training. It is also useful for the disposal of apprentices on attaining adult age. The Master

Schedule Board is largely impersonal, *i.e.*, the cards do not bear names of individual apprentices, and only one board is required for each works.

A transfer card is hung in the appropriate space on the Master Schedule Board to denote the date a move is due to take place. It may be desired for an apprentice to be transferred from one shop to another every twelve months, and the card will give these particulars without reference to a particular individual.

How Transfers are Made

Assuming it is now September, and that the card coincides with that month, the card will be moved forward on the board as soon as the transfer has been effected, to September of the next year, and the date on the card revised. The twelve-monthly transfer can then be forgotten until the next September arrives, when a transfer is again carried out, and the card moved forward twelve months. Thus, without any difficulty, a girl clerk controlling the master moves has a constant reminder of what transfers are required as each month comes along. A hinged glass front to the board minimises the possibility of any cards being displaced.

A Shop Schedule Board as in the illustration on page 354 is required in each shop in which apprentices are employed. The purpose is to ensure the maintenance of the quota of apprentices on each section of the work in the shop and the movement of apprentices from section to section on the correct date. The board is

TABLE VII

REPORT ON ENGINEERING OR TRADE APPRENTICE ON ATTAINING TO 21 YEARS OF AGE

L.M.S.R., C.M.E. DEPT. Works Grade Date
Name
Date of birth Date entered service Date apprenticeship completed

Practical experience	Period		WHERE EDUCATED PRIOR TO EMPLOYMENT			
	Years	Months	EXAMINATION SUCCESSES			
Appearance Personality Ability* Attention to duties*			TECHNICAL CLASSES ATTENDED			
			Date	Technical College or Institute attended	Particulars of Approved Courses taken	
			TECHNICAL ATTAINMENTS			
			MEMBERSHIP OF TECHNICAL INSTITUTIONS			
			Date admitted	Name of Institution	Grade	
			Individual's own preference as regards career			
WORKS SUPERINTENDENT'S RECOMMENDATIONS			DISCIPLINARY RECORD			
			Date	Offence	Decision	

* Standard Code limited to the following alternatives :—
 Ability
 VG—Very good
 A—Average
 F—Fair
 Attention to duties
 VA—Very attentive
 G—Good
 M—Moderate

Signed
 Works Superintendent

located in the office of the shop foreman, and is, therefore, constantly under his notice.

A card 2 in. square is used in respect of every individual apprentice employed in the shop, with the dates he is transferred to the various sections, and a record of his ability and attention to duties on each section is progressively entered on the card.

A Systematic Record

In this way, all the training received is systematically recorded, code letters being given to each section to reduce clerical work to a minimum. To ensure reasonable uniformity, each report is normally limited to the alternative reports indicated below, these giving nine variations:—

Ability	Attention to duties
VG—Very good	VA—Very attentive
A—Average	G—Good
F—Fair	M—Moderate

Where it is felt that the ability and attention to duties of any apprentice is unsatisfactory, and cannot be reported in accordance with the standard code, the remarks which it is felt necessary to give serve to draw attention to unsatisfactory progress.

A weekly return, Table V, is submitted by the shop foreman to the Works Superintendent, showing all transfers to another section or shop. From this weekly return, the girl clerk records the progress of the apprentice on the Apprentice Progress Card (Table VI). Information on the educational training of the apprentice is also recorded and entered on the reverse side of the card.

On completion of the apprenticeship, a statement, Table VII, is prepared in the office of the Works Superintendent from



Apprentices working on a 10-ton open goods wagon in the wagon repair shop

the progress card, and submitted to the Chief Mechanical Engineer. This enables consideration to be given to the continued employment of the apprentice as a craftsman or of his transfer to a junior technical position at the age of 21 years.

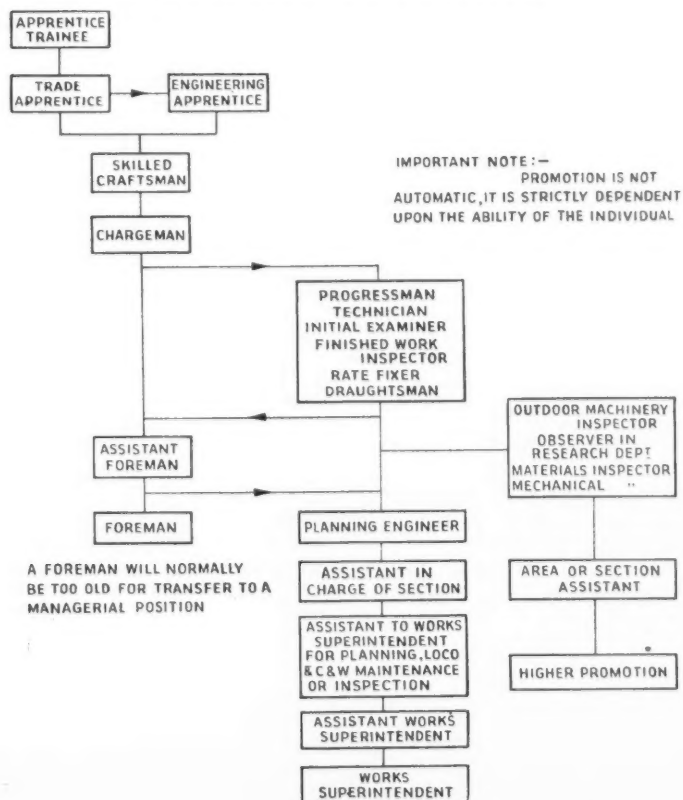
Table VIII shows the normal line of promotion, and in conjunction with the system described, it will be appreciated

that every consideration is given to the full training for each individual.

It may be added that more recently the progressive system of workshop training has been introduced into the Electrical Section, Outdoor Machinery Section, and the Electric Car Repair Shops of the Chief Mechanical Engineer's Department. These, together with the requirements of the main works, involve the employment of more than 700 apprentices a year to maintain the normal quota—a figure probably in excess of any firm in the country due to the great diversity and volume of the skilled work undertaken.

In addition to engineering and trade apprentices, a limited number of pupils also is employed. Suitable applicants who have obtained an engineering degree undergo a pupilage of two years' duration, mainly spent either in the Locomotive Section, Carriage & Wagon Section, or Electrical Section. No premium is required; candidates are admitted entirely on merit. The normal age limit for pupils is 24, and there are many prominent engineers today who attribute their success to the practical training they received with the L.M.S.R.

TABLE VIII
CHART SHOWING NORMAL LINE OF PROMOTION



CENTENARY OF LANCASTER-OXENHOLME AND KENDAL LINES, L.M.S.R.—The centenary occurred on September 22 of the opening for traffic of the first completed section of the Lancaster & Carlisle Railway, between Lancaster and Oxenholme, a distance of 20 miles. On the same day in 1846 there was brought into use the first 2 miles, between Oxenholme and Kendal, of the Windermere branch, which was constructed by the Kendal & Windermere Railway Company. With the opening of the railway from Lancaster to Oxenholme, what is now the main L.M.S.R. West Coast Route to Scotland was brought to within 50 miles of the Border City of Carlisle, to which the railway was extended in December, 1846. The Lancaster & Carlisle Railway began at a junction with the Lancaster & Preston Junction Railway about one mile south of Lancaster Castle Station, and with the opening of the latter, passenger traffic ceased to use the original Lancaster railway station—the terminus of the Lancaster & Preston Junction Railway, opened in 1846.

Power-Driven Hand Tools for the Civil Engineer's Department—7

Oxy-acetylene equipment for jointing, cleaning, and cutting



Use of flame-gouging equipment to remove a defective weld from a bridge girder before re-welding

ALTHOUGH not "power-driven" in the strict sense of the word, the numerous civil engineering applications and portability of oxy-acetylene apparatus for jointing, welding, flame cleaning, and cutting made it appropriate for a selection of such equipment to be shown at the recent L.N.E.R. exhibition of hand tools for the civil engineer's department.

All the equipment illustrated is made by the British Oxygen Co. Ltd., Grosvenor House, Park Lane, London, W.1. The oxy-acetylene lead-burning outfit, Type O, is very suitable for jointing lead guttering, lead roof sheeting, lead down pipes, roof scoots, and so on. It can also be used for welding light sheet copper and light gauge copper piping. The complete outfit is supplied normally in a light sheet metal case, so that it is easily portable and fully self-contained. The total weight, in case, is approximately 20 lb., and the case measures 19½ in. × 11 in. × 3½ in. Two handles are fitted in addition to the usual metal clasps, so that it is impossible for the case to fly open when being carried.

Two British Oxygen outfits for flame-

cleaning steel structures were also exhibited. The heavy duty equipment, Type FH, comprises 2-in. to 12-in. nozzles, suitable for flame cleaning steelwork preparatory to painting. This method of cleaning all types of steelwork is now quite widely used. After flame treatment, the steelwork is wire-brushed, and the first coat of paint applied while the steelwork is still warm. The complete outfit includes all necessary accessories such as regulators, valve adaptors, and 30-ft. or 60-ft. lengths of tubing. A smaller equipment, Type CH, is also available for light-duty applications, with 2-in. to 4-in. nozzles and all associated accessories.

Flame gouging is a useful and economical method of cutting grooves in steel, cutting out defective welding, removal of fillet welds, plate edge preparation, and similar tasks. The British Oxygen Co. Ltd. supplies a complete set of equipment for this work. Three sizes of nozzle are available, with which the minimum groove that can be cut is ¼ in. deep by ⅞ in. wide, and the maximum ¾ in. deep by ½ in. wide. In addition, there is a descaling nozzle

which has proved valuable for work such as removing surplus metal from rough forgings, risers from castings, and so on. There is a choice of blowpipes according to the characteristics of the work being undertaken, a short, straight pattern being particularly suitable for gouging in confined spaces or awkward corners.

Welding and Cutting Equipment

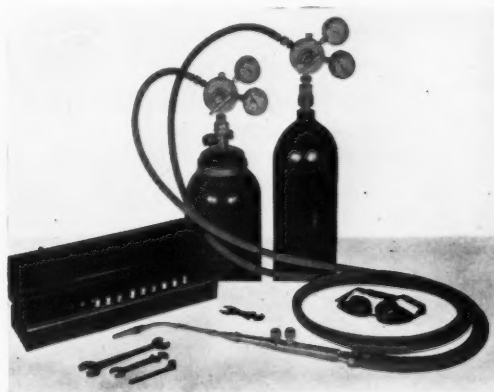
The British Oxygen Co. Ltd., also supplies a wide range of complete outfits for oxy-acetylene welding, surface heating, and cutting. The examples shown at the Kings Cross exhibition provided for most kinds of general welding, and also for the handcutting of steel up to 15 in. or cast iron up to 3 in. thick. A standard general purpose outfit, Type CH, is illustrated. This is recommended for all general welding operations on light or heavy sections. The blowpipe supplied has ten nozzles, sizes 2 to 45, and extra nozzles are available for work on very light or extra heavy sections. An alternative outfit, Type DH, with a much lighter blowpipe, can be supplied for welding light sections from ⅛ in. to ⅝ in., and is adaptable for thicknesses up to ⅞ in. by the use of three extra nozzles. This outfit is intended for sheet metal and light repetition work where lightness in the weight of the blowpipe is desirable. Trolleys are available for transporting both types of outfit and their accessories, either for outdoor or indoor work.

ROLLER BEARINGS FOR LOCOMOTIVES.—

In introducing a technical film show at the May Fair Hotel, W.1, on September 18, Mr. F. J. Pascoe, Managing Director of British Timken Limited, said that his company worked in close association with the Timken Roller Bearing Company, Canton, U.S.A.; and Mr. Clifford L. Eastburg, of the American company, was on a visit to this country. Several slow-motion views were shown of slipping tests on a test track of the Chicago, Burlington & Quincy Railroad. In trials at a speed equivalent to 128 m.p.h., the driving wheels of a 4-6-4 locomotive equipped with Timken roller bearings and lightweight rods lifted ¼ in. from the rail, but with no damage to the track. Mr. Eastburg, who gave a running commentary on the films, said in the ensuing discussion that 2,500 locomotives with Timken bearings were in service or on order in the United States. An engine put in service in 1930 had run 1½ million miles without the bearings needing renewal.

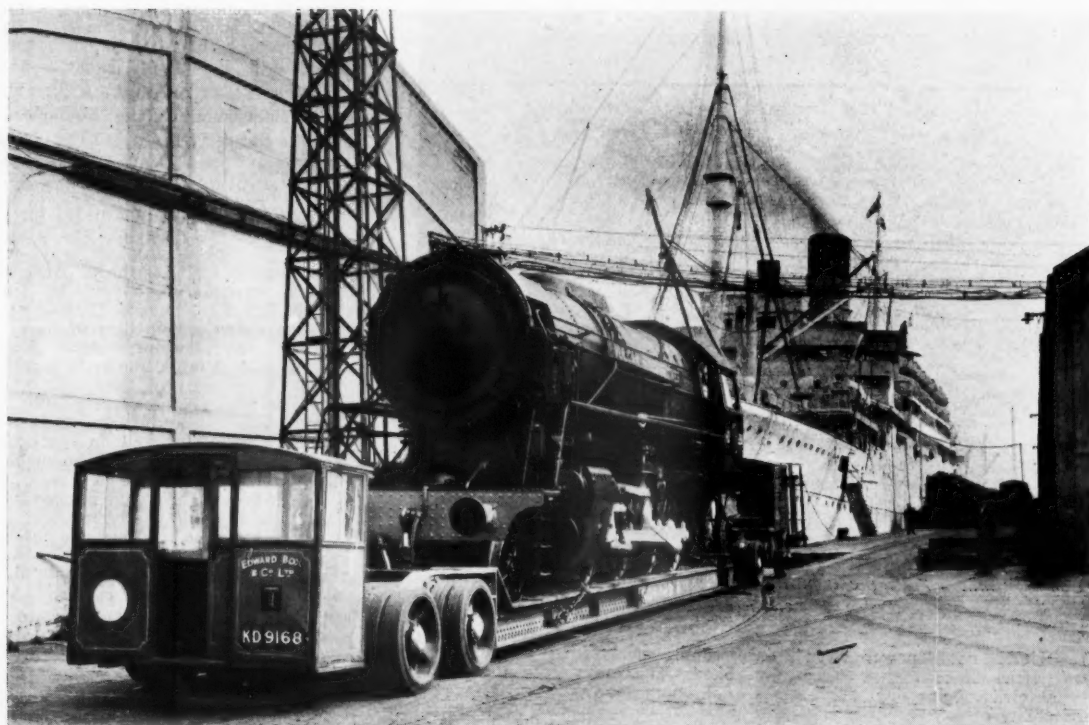


Portable lead burning outfit, Type O



General-purpose welding equipment, Type CH

"Liberation" Locomotives Being Shipped to the Continent



One of the "Liberation" 2-8-0 type locomotives, built by the Vulcan Foundry Limited, arriving at the docks for shipment to the Continent



"Liberation" locomotives aboard the "Empire Wallace." An illustrated article describing these locomotives was published in our June 28 issue

RAILWAY NEWS SECTION

PERSONAL

Mr. Geoffrey Heyworth has accepted the invitation of the Lord President of the Council to be Chairman of the Advisory Council for Scientific & Industrial Research in succession to Lord Riverdale, who is retiring after holding the appointment for nine years. Professor H. W. Melville, Professor of Chemistry at Aberdeen University, has been appointed a member of the council in succession to Sir Franklin Sibly. Mr. Heyworth is a Member of the London Passenger Transport Board.

Mr. C. A. Lyon has been appointed Press & Publications Officer to the London Passenger Transport Board. He will be in charge of the press liaison work, and will supervise the preparation of the Board's staff magazine and special staff publications. Mr. Lyon has been for many years with the *Sunday Express*.

Mr. J. Clifford Wood, Commercial Manager, John Fowler & Co. (Leeds) Ltd., has been appointed a Director of the company.

We regret to record the death, at the age of 63, of Mr. J. H. Stirk, Regional Transport Commissioner, North Midland Region.

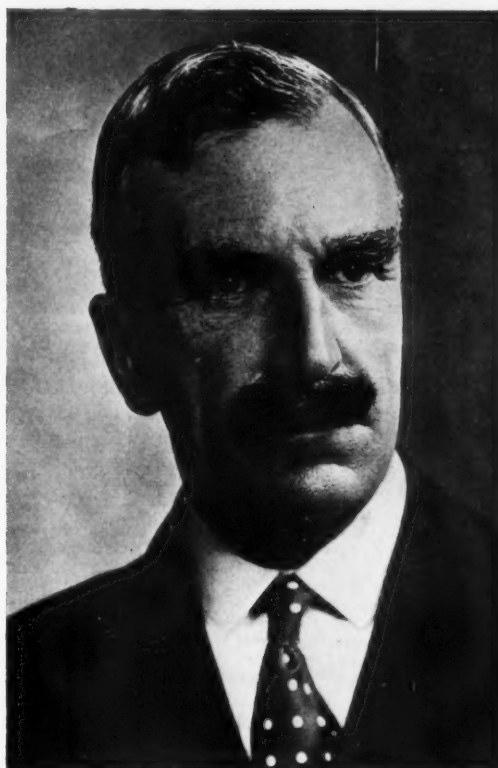
WESTERN AUSTRALIAN GOVERNMENT RAILWAYS, TRAMWAYS & FERRIES

Consequent on the retirement, recorded in our August 16 issue, of Mr. J. F. Tomlinson, Secretary for Railways & Assistant to the Commissioner, and on the transfer of Mr. W. H. Taylor, General Manager, Tramways & Electricity Supply, to the newly-formed State Electricity Commission, Mr. C. Reymond has been appointed Secretary for Railways, Mr. P. C. Raynor has been appointed Personal Assistant to the Commissioner, and Mr. J. H. Napier has been appointed Manager, Tramways & Ferries.

ASSOCIATED ELECTRICAL INDUSTRIES LIMITED

To make vacancies on the board of Associated Electrical Industries Limited for the appointment of the Managing Directors of its two principal subsidiaries, the Metropolitan-Vickers Electrical Co. Ltd. and the British Thomson-Houston Co. Ltd., and to secure representation for associated interests, the following Directors of A.E.I. have tendered their resignations: The Earl of Verulam, Lt.-Colonel Sir John Chancellor, Sir Louis Greig, and Colonel T. W. Pragnell. The following have been elected to the board: Lt.-General Sir Ronald Weeks, Mr. I. R. Cox (Managing Director, Metropolitan-Vickers Electrical Co. Ltd.), and Dr. H. Warren (Managing Director, British Thomson-Houston Co. Ltd.). Sir Felix Pole has resigned the Deputy-Chairmanship of A.E.I., and Sir George E. Bailey, in addition to being Managing Director, has been appointed Deputy-Chairman.

Mr. John Bagwell, D.L., J.P., whose death, at the age of 72, was recorded in our August 30 issue, was General Manager of the Great Northern Railway (Ireland) from 1911 until his retirement in 1926. Mr. Bagwell was educated at Harrow and at Trinity College, Oxford. From 1897 to 1899 he was in the service of the Midland Railway (England), and then, from March to November of the latter year, he visited the U.S.A. and



The late Mr. John Bagwell

General Manager, G.N.R. (Ireland), 1911-26

Canada to study railway methods. In 1900 he rejoined the Midland Railway and was attached to the staff of the District Passenger Agent at St. Pancras; and in 1903 he was appointed Relief District Superintendent on the staff of the Superintendent of the Line. In 1905 he was made Outdoor Assistant to the London District Passenger Agent, and, on the reorganisation at the end of 1909, was appointed Superintendent of Passenger Service. He was appointed General Manager of the Great Northern Railway (Ireland) in 1911, from which position he retired in 1926. Mr. Bagwell was a Senator of the Irish Free State from 1922 to 1936. One of his sons is Mr. R. Bagwell, at present District Passenger Manager, London, L.M.S.R.

We regret to record the death, in his 70th year, of Mr. Charles A. Dunbar, Vice-Chairman and a Managing Director of the British Oxygen Co. Ltd., and a Director of a number of associated companies.

INDIAN RAILWAY STAFF CHANGES

Sir Arthur Griffin, O.B.E., Chief Commissioner of Railways, has been granted additional leave, preparatory to retirement, for 11 months as from May 19.

Mr. R. de K. Maynard has been confirmed permanently as General Manager, M.S.M.R.

Mr. E. L. Roberts has been confirmed permanently as Chief Operating Superintendent, M.S.M.R.

Khan Bahadur Z. H. Khan, on return from leave, resumed his duties as Director, Establishment, Railway Board, on July 1.

Khan Bahadur F. M. Khan, on expiry of his leave, has resumed duty as Director, Traffic, Railway Board, as from June 24.

Mr. R. G. Bosu has been appointed to officiate as Controller of Stores, E.I.R., as from April 23.

Mr. C. Hill Turner has been appointed to officiate as Controller of Stores, M.S.M.R., as from May 6.

Mr. P. L. Roy has been appointed to officiate as Chief Transportation Manager, B.A.R., as from June 1.

Mr. C. M. Dodge, Officiating Chief Commercial Superintendent, S.I.R., has been granted six months' leave as from June 5.

Mr. L. I. Hockley has been appointed to officiate as Chief Commercial Superintendent, S.I.R., as from June 17.

Rao Bahadur R. Madhava-chari, Temporary Controller of Stores, S.I.R., has been granted one year's leave preparatory to retirement as from June 8.

Mr. E. La V. Parisot has been appointed to officiate as Controller of Stores, S.I.R., as from June 8.

Mr. P. C. Ghosh has been appointed to officiate as Controller of Stores, B.N.R., as from May 7.

Rai Bahadur V. Nilakantan has been confirmed as Secretary, Railway Board, as from March 1.

Dr. Edwin Gregory and Brigadier Arthur Levesley have been appointed Directors of Edgar Allen & Co. Ltd.

Mr. Walter W. Stevenson, Assistant Director, Research & Development Department, United Steel Cos. Ltd., has been appointed Chief Metallurgist to Dorman, Long & Co. Ltd.

The late Mr. J. E. Humphrey, who was a Managing Director of the Proprietors of Hay's Wharf Limited, left £419,979.

C.P.R. STAFF CHANGES

Mr. Murray A. Keays, Special Representative, Office of the Vice-President & General Manager, Canadian Pacific Railway, Western Lines, has been appointed Assistant to the General Superintendent of Transportation for the system, with headquarters at Montreal.

Mr. Oscar J. Donaghy, Chief Supervisor of Perishable Traffic & Weighing, C.P.R., Montreal, has been appointed Car Accountant for the system in succession to the late Mr. R. H. Dunlop.

Mr. Geoffrey Marshall, whose death, at the age of 64, we recorded last week, was Goods Manager, Southern Area, L.N.E.R., from 1923 until he retired from the company's service early last year. Mr. Marshall had been released early in 1943 from responsibility for the goods and mineral work of the Southern Area, to take up the appointment of Chairman of the Goods Committee of the Railway Executive Committee. He had represented the L.N.E.R. on the R.E.C. Goods Committee since its formation, and he retained his position as Chairman of the committee until December 31, 1945. Mr. Marshall was born in 1882, and was educated at Winchester and at New College, Oxford, where he obtained, in 1905, the Honours Degree (Lit. Hum.). Later in that year he joined the Great Northern Railway, and he was appointed, in 1910, District Manager of the Main Line "B" District, with headquarters at Peterborough. In 1914, shortly after the outbreak of war, he joined the Army and served in India for three-and-a-half years with the 9th Hampshire Regiment, eventually becoming Adjutant. In 1918 he was transferred for service under the Indian Railway Board as Personal Assistant to Major-General Freeland. He returned to England in July, 1919, and resumed his railway duties; on October 1 of that year he succeeded Mr. G. Shaw as Goods Manager, Great Northern Railway. In 1920 he went to America with Mr. H. Thornhill of the L.M.S.R. on an inquiry into certain American railway matters, on behalf of the Railway Companies' Association. In 1923 Mr. Marshall was appointed Goods Manager, Southern Area, L.N.E.R.; and during his long term of office he was associated closely with such important matters as rates revision, agreed charges and the "square deal," and finally with the many and varied problems arising from the recent war, during which he served also as Commander of the H.Q. 1 Home Guard, and subsequently as L.N.E.R. Home Guard Liaison Officer (with the rank of Colonel). Mr. Marshall relinquished the Chairmanship of the Railway Clearing House Goods Managers' Conference on his retirement from L.N.E.R. service.

Mr. Cecil J. Allen, F.R.S.A., M.Inst.T., A.I.Loco.E., has retired from the L.N.E.R. Chief Engineer's Department. He joined the Engineer's Department of the Great Eastern Railway in 1903. Apart from his railway work, Mr. Allen has written frequently for the railway press on track and speed matters, and has contributed the regular feature "British Locomotive Practice and Performance" to our associated contemporary, *The Railway Magazine*, since August, 1909.

The late Lt.-Colonel Frank Rayner, who was a Director of the Trent Navigation Company, left £19,302.

Mr. R. I. Kirkland, O.B.E., A.M.I.Mech.E., who resigned his appointment as Assistant Chief Mechanical Engineer & Works Superintendent, Kenya & Uganda Railways & Harbours, last December, and joined the board of Whitelegg & Rogers Limited last March, since has completed a tour of America investi-



The late Mr. Geoffrey Marshall
Goods Manager, Southern Area, L.N.E.R., 1923-45
Chairman, R.E.C. Goods Committee, 1943-45

gating locomotive operation. Mr. Kirkland plans to visit India in the near future.

Mr. G. de P. Leeper has been appointed to the new post of Public Relations Officer of the Bombay Group (Bombay, Baroda & Central India and Great Indian Peninsula Railways) of Indian Railways.

We regret to record the death on September 17, of Mr. Malcolm Patrick, Locomotive Superintendent, Northern Counties Committee, L.M.S.R. Mr. Patrick served his apprenticeship with the Belfast & Northern Counties Railway from 1899 to 1904, and gained experience in the various workshops and in the draw-



The late Mr. Malcolm Patrick
Locomotive Superintendent, Northern Counties Committee, L.M.S.R., 1933-46

ing office. In 1905 he was made Locomotive Inspector, and six years later was promoted to be Running Superintendent. During the war of 1914-18 he served with H.M. Forces, and he did not return to railway service until 1933, when he was appointed Locomotive Superintendent, N.C.C., L.M.S.R.

Mr. J. C. L. Train, Chief Engineer, L.N.E.R., and two of his assistants, Mr. R. C. Rattray, Development Assistant, and Mr. A. F. Wigram, Signalling Assistant, are going to Canada and America on an inspection tour, leaving this country on September 28 for Halifax.

Mr. J. McDowell, Chief Purchasing Agent of the Dunlop Rubber Co. Ltd., has retired after 46 years' service. He is succeeded by Mr. J. P. Anderson, recently appointed Deputy Purchasing Agent.

L.P.T.B. STAFF CHANGES

Mr. T. J. Tilston, Operating Manager (Trams & Trolleybuses), retired on September 21.

Mr. T. W. Towers, Divisional Superintendent (North), Trams & Trolleybuses, has been appointed Acting Operating Manager (Trams & Trolleybuses).

Mr. Henry F. C. Adcock has been appointed Assistant Divisional Superintendent (Northern Division), Trams & Trolleybuses.

COLONIAL RAILWAY APPOINTMENTS

The Secretary of State for the Colonies has made the following appointments:—

Mr. H. M. Alexander to be Assistant Engineer, Nigerian Railway.

Mr. D. A. L. Wallace to be Assistant Engineer, Nigerian Railway.

Mr. A. J. Ball to be Assistant Mechanical Engineer, Federated Malay States Railways.

Mr. E. J. Mole to be District Engineer, Federated Malay States Railways.

Mr. B. C. Farmer to be Assistant Mechanical Engineer, Tanganyika Government Railways.

Mr. F. D. Jarvis, Permanent Way Inspector, Palestine Railways, to be Assistant Engineer, Palestine Railways.

EXTENSION OF G.W.R. ZONAL SCHEME FOR SMALL CONSIGNMENTS.—The G.W.R. is to extend further its zonal scheme designed to provide a one-day transit time for small consignments of goods between all parts of the system. As from October 1, new zones based on St. Austell, Swindon, Reading, Leamington, and Wolverhampton are to be brought into operation. These zones will cover areas ranging from 250 to 1,000 square miles. All small consignments of goods, incoming and outgoing at present handled at from 13 to 44 local stations, will in future be concentrated on one main depot and from 2 to 6 sub-depots in the new zones. Collection and delivery within the zones will be by the company's road fleets, which will be concentrated in future on the main and sub-depots. The principles of the zoning scheme, which was introduced in the Birmingham area at the end of last year, were described in an editorial note in our January 25 issue, and its extension to Cardiff, Pontypridd, Port Talbot, Worcester, and Redruth was reported in our July 5 issue. Ultimately 34 zones will cover the G.W.R. system.

Underground Railways and the Planning of London

One phase of planning which is contributory to the main scheme still to be worked out for the rebuilding of London concerns the underground railways. This phase was dealt with at the recent British Association conference in a paper by Mr. J. C. Martin, Assistant Engineer (Tunneling), L.P.T.B., who said that, regarding planning, we had done little more so far than to ventilate the subject in text, and so awaken a lively interest.

The scheme of the Railway (London Plan) Committee presented to the Minister of War Transport in January, 1946, was drawn up with a proviso that half the Southern Railway terminal stations will be abandoned as suggested in the County of London Plan, 1944, and it lays down what will be necessary in replacement to bring all people living southwards of the River Thames into the City and the West End for their work.

The scheme, continued Mr. Martin, does not stop short at reinstatement, but includes similar facilities for the suburban services of other main-line companies, which, following the Southern Railway example, are embarking on general electrification. The planning of additional tube lines is also included in the scheme.

The subsoil of London is already becoming congested, and so the planning of the new railways in larger tunnels will need a great deal of thought. The under-river crossings of twin tunnels at eleven places add to the difficulties of grading and routing. It will take some years, therefore, under the closest co-ordination in the major planning, to arrive at the stage when construction can be begun.

PROBLEMS INVOLVED

As a general rule, these new lines will have to be built in zones of the subsoil beneath those already occupied by existing works. The character of the lower strata must be explored by boring in some hundreds of places before it can be determined to what extent working in compressed air can be avoided. The siting of the station tunnels, their alignment, and the run of the tunnels as a whole will require careful study, as curves of much greater radii than was thought allowable in the early part of this century for the smaller diameter tubes must be used.

In those days 6, 7 and 8 chains radius curves were permissible; but for these new lines we must design for the running of larger and heavier stock at higher speeds. The ruling radius should not be sharper than 20 chains, except for short lengths on approaching and leaving stations, where 15 chains might be permitted in extenuating circumstances.

Owing to the greater length of train, 650 ft. instead of 350 ft. on the existing tubes, and the correspondingly increased number of doors to be kept in view of the guard while the train is loading, these platforms should be straight, or built on such an open radius that there is full sight of all doors from the rear of the train. These conditions create difficulty in bringing the new stations in close proximity to the present ones and in arranging convenient passages for interchange.

The original tubes were designed by engineers of separate companies, and interchange below ground was completely disregarded. It was not until they were almost completed by the Underground Electric Railways Company of London Limited as a combine that interchange pas-

sages and stairs were added in the best way they could be designed in the circumstances. The interchange problem will need a great deal of solving where two or three new stations are intended to have intercommunication with two existing stations. I have no doubt, however, that satisfactory and convenient arrangements can be made.

The building of the original sections of the Bakerloo, Piccadilly, and Hampstead tubes in 1903 to 1907, with an aggregate length of about 23 miles, taxed all the resources of the London contractors doing this specialised work, and the iron foundries were hard put to it to supply the requisite daily quantities of iron tunnel lining.

The 23 miles of railways needed about 13,000 tons per mile, or about 300,000 tons in all. The building of this group of main-line size tubes will consume at least 3 million tons of iron, but, fortunately, in a longer period of time.

DISPOSAL OF EXCAVATION

Another problem will arise in the disposal of the excavation. In the early days, vast quantities were despatched to Peterborough and tipped into worked-out clay pits of Fletton brickyards, a great deal of the spoil was disposed of in old gravel pits in the London area, and the remainder, being the Bakerloo excavation approximating to half a million cu. yds., was discharged into barges at Hungerford Bridge and dumped in the Thames Estuary eastwards of the Nore.

There will be over ten times the spoil to be disposed of in this scheme, and every site in the London area is full to overflowing with rubble collected from buildings shattered during the war. It is difficult to visualise 50 million cu. yds. of clay. One square mile 50 ft. deep is another measure of it.

Few people, other than those who have been intimately engaged on the design and construction of tube railways, can have any idea of the intricacy of planning the details of such works. No two stations are alike. Geographical positions and varying levels cause each station to be designed quite independently.

Before any of the works can be constructed, there is the nightmare of setting out, and the tedious and intricate business of making the surveys by night, when the streets are empty. Nine times out of ten, this work has to be done in the late autumn and winter months, in fog, sleet, rain, frost, and snow, and it is a wearisome task. The complete knowledge of the survey on the surface has to be transferred down to tube level by measurements and angles via a couple of steel wires plumbed down working shafts about 11 ft. apart. In spite of this limitation of our base, we are able to drive the tunnel between the working shafts, which average about half-a-mile apart, and meet together at the halfway point within a variation of distance line and level inside the diameter of a sixpence.

The position is becoming acute, and some way should be found at the earliest possible moment to establish in reality a beginning of London's reinstatement. We require:

- (1) To set up a Select Committee or Commission of practical people to work continuously;
- (2) to formulate the work in the proper order;

(3) to see that estimates are given in terms of money and time for everything needed;

(4) to avoid the destruction of good and bad alike in order to create some grandiose change in London and so make it unrecognisable.

ORDER OF PRIORITY

Communications must be planned first, and in the order railways and then roads. The wholesale removal of main-line railway termini to new sites is unnecessary and a needless extravagance. Each would be about a 20-years' job and create an incredible traffic chaos of which few of us could hope to see the end. In this case, all that great system of underground railways now existing would become dislocated, and practically useless. Railwaymen must form a strong part of the co-ordinating body.

A co-ordinating body of some 20 people, chosen for their judgment and technical knowledge, and supported by properly staffed draughting offices, could produce within two years a practical plan for London provided that their work was uninterrupted, and that they could reasonably combine as a team. We should not be depressed at the trend of things, but put a good face on it, and get to work with energy and a sense of proportion.

F.B.I. Conference on Export

Practical issues facing Great Britain's export trade will be discussed at the two-day conference on export organised by the Federation of British Industries, to be held in the Central Hall, London, on November 27 and 28. The Conference will be opened by Sir Clive Baillieu, K.B.E., C.M.G., President of the F.B.I., and presided over by Mr. Leslie Gamage, M.C., Member of the F.B.I. Grand Council, President of the Institute of Export, and Chairman of the British Export Trade Research Organisation.

Sir Stafford Cripps, K.C., M.P., President of the Board of Trade, will speak at the opening session on the significance of exports to the national life. At this session Mr. Leslie Gamage will outline the objectives of the conference, and the Rt. Hon. S. M. Bruce, C.H., M.C., F.R.S., formerly High Commissioner for Australia in London, will speak on British exports from the point of view of the Dominions.

The subject to be discussed at the second session of the conference is "The Functions of Government and of Industry in relation to the Export Trade"; the principal speakers will be Sir John Woods, K.C.B., M.V.O., Permanent Secretary to the Board of Trade, and Sir Norman V. Kipping, J.P., Director-General of the Federation of British Industries. At the morning session on the second day of the conference, the subject will be "Production for Export and its Relationship to Production for the Home Market," when the speakers will be Lt-Colonel H. B. Riggall, J.P., Member of the F.B.I. Grand Council, President of the British Engineers' Association, and Mr. E. W. Goodale, C.B.E., M.C., Member of the F.B.I. Grand Council, and Chairman, Furnishing Fabric Export Group.

"Export Selling" will be the subject of the final session, when merchant's selling methods will be discussed by Mr. E. A. Carpenter, J.P., Vice-President of the Manchester Chamber of Commerce, and the manufacturer's selling methods by Sir Frederick Bain, M.C., Deputy-President of the F.B.I.

Anglo-Argentine Railway Agreement

Below is the text of the agreement, so far as it concerns railways, reached between the Argentine Government and the British Mission headed by Sir Wilfred Eady:—

A.—An Argentine company to be formed with the participation of either the Argentine State and/or of Argentine private individuals for the purpose of acquiring and operating assets, direct and indirect, of the British-owned railway companies which are situated in Argentina, as set out in a schedule to be agreed. The new company to accept responsibility for the rights and responsibilities of British companies, except that the new company would not assume any responsibility in relation to debentures issued by British companies.

B.—The Argentine Government to agree to set up a technical advisory sub-committee to meet representatives of the British railway companies before the end of October to agree the amount of initial capital, the constitution of the new company, the transfer, the basis of operation generally, and any further connected questions. It is the intention that transfer should be completed by January 1, 1947, or as soon after as possible.

C.—The Argentine Government to grant the new company exemption from all and any national and municipal taxes, present and future, and likewise to exempt the new company from all and any Customs House duties, present and future, on materials and articles for construction and working which it imports into Argentina. But this exemption from Customs House duties will not apply to materials and articles normally produced or manufactured in Argentina at the time of import. The payment of dividends by the new company to British railway companies or to any holding company or organisation formed by them for the purpose of receiving and distributing to be made with the same complete exemption from reduction for Argentine taxation as has hitherto applied to financial remittances of profits by British companies from Argentina to London.

D.—The whole of the initial capital of the new company to be in shares denominated in Argentine pesos and ranking *pari passu* in all respects, and to be allotted to the British companies credited as fully paid as the purchase price for the assets to be acquired. The Argentine Government to reserve the right, on giving reasonable notice, to acquire at any time at par part or all of the shares of the new company in the hands of any holder. The British railway companies to be entitled to buy and sell shares in the new company on the market in Argentina.

E.—If at any time, during the course of two consecutive years, the net income of the new company shall not reach 4 per cent. per annum of the issued capital, the Argentine Government will adopt measures necessary to permit the new company to earn an annual net income of 4 per cent. as a minimum. If in any year the net income exceeds 6 per cent. of the issued capital, the amount of such excess to be applied towards amortisation or redemption of the new company's capital, or for the construction or extension of the railways. If the net income available for distribution on the initial capital does not amount to 80,000,000 pesos in any year, the amount of such deficiency will be made good to holders of initial capital by the Argentine Government. For the purpose of this paragraph, it is understood that net income shall mean the net income available for distribution after making provision for all

outgoings, payments, and contingent liabilities of whatever nature and an allowance for reserves required for renewals at rates to be agreed.

F.—The Argentine Government to provide for the new company, in such manner as it may consider most convenient, 500,000,000 pesos in cash over the period of the next five years, to be applied to the modernisation of the system. The new company to issue new shares at par against the receipt of such sums. Such new shares to be of the same class as shares of the initial capital except as regards the receipt of any difference for which the Argentine Government would be responsible under paragraph E, when annual net profits do not amount to 80,000,000 pesos.

G.—No taxes, duties, fees, or other charges to be payable by the new company or British railway companies which

would ordinarily be due under national, provincial, or municipal jurisdiction within the Argentine Republic in respect of the formation or incorporation of a new company or in respect of cessions, transfers, notations, and official publications required to be made under this agreement.

H.—Upon approval being obtained as mentioned in the next paragraph, and on transfer being duly completed, the transfer to be deemed to take effect as from July 1, 1946. All rights and obligations of the Argentine Government, the British companies, and the new Argentine company under these heads of agreement to take effect as from that date.

I.—This agreement is conditional on the approval of the shareholders of the British companies being obtained in accordance with English law and also on the approval of the Argentine Government in accordance with Argentine law.

(See editorial article, page 343)

L.M.S.R. Winter Timetables

Widespread further accelerations of long-distance passenger services, and the introduction of 44 additional restaurant cars, will be features of the revised timetable to be introduced by the L.M.S.R. on Monday, October 7. The extent to which train services are being restored is indicated by the total weekly passenger train-mileage to be run in October, which at 1,544,000 miles represents an increase of 180,000 miles a week as compared with the winter services of 1945-46, and is equivalent to 88 per cent. of the pre-war winter mileage.

Total restaurant car services will amount to 100 on weekdays and 22 on Sundays, compared with 204 and 66 respectively in the winter of 1938-39; the October additions comprise 44 on weekdays and 14 on Sundays.

Below are given examples of the principal improvements in train services:—

ANGLO-SCOTTISH EXPRESSES

London-Glasgow—10 a.m. ex-Euston will arrive Glasgow (Central) at 6.30 p.m., acceleration 25 min.; 10 a.m. ex-St. Pancras will leave at 9.55 a.m. and arrive Glasgow St. Enoch at 7.23 p.m., acceleration 79 min. Mid-day service, St. Pancras to St. Enoch, will be 51 min. quicker. Night express from St. Pancras at 9.30 p.m. will arrive St. Enoch at 8 a.m., 106 min. earlier than at present.

Glasgow-London—10 a.m. ex-Glasgow Central will arrive Euston 6.15 p.m. (41 min. earlier); 9.50 a.m. St. Enoch-St. Pancras 56 min. quicker; 1 p.m. Glasgow Central-Euston, 20 min.; 12 noon St. Enoch-St. Pancras, 50 min.; 9.5 p.m. sleeping car train from St. Enoch will arrive St. Pancras at 7.10 a.m., 95 min. earlier.

On the Waverley Route between St. Pancras and Edinburgh, the acceleration of the two principal weekday expresses in each direction will average 52 min.

LONDON TO MANCHESTER AND LIVERPOOL

Between Euston and Manchester London Road, 5 trains accelerated by an average of 25 min.; in the reverse direction, 6 trains speeded-up by 15 min. average. Maximum acceleration, 32 min. New restaurant car express from Euston at 3.55 p.m. weekdays, due London Road 8.10 p.m. The 8.20 a.m. from Manchester and 6 p.m. from Euston will make the run in 3½ hr.

Between St. Pancras and Manchester the service is remodelled to give more convenient train times, the average accelera-

tion of 6 down trains being 42 min., and of 5 up trains, 38 min. The former 3.30 p.m. from St. Pancras, re-timed to leave at 4.20 p.m., will be accelerated 58 min.

All principal trains from Euston to Liverpool will be speeded-up by 15-25 min., the 5.45 p.m. from Euston covering the journey in under 4 hr. Corresponding improvements will be made in the up direction, the fastest train being the 2.5 p.m. from Lime Street, accelerated 25 min. to make the run in 3¼ hr. Through carriages (one each way daily) are being restored between Southport and Euston.

LONDON-BIRMINGHAM-WOLVERHAMPTON

Restaurant cars are being restored to the principal trains on this route (except on Saturdays), acceleration of the principal business trains averaging: London-Birmingham, 14 min.; London-Wolverhampton, 17 min.; and Wolverhampton-London, 26 min.

Fastest times between Euston and Birmingham are reduced to 2½ hr., and in the reverse direction to 2 hr. 10 min., the present 5 p.m. from Birmingham, for instance, being altered to leave at 4.50 p.m. and to arrive Euston at 7 p.m. instead of 7.50 p.m. New expresses are introduced at 6.55 p.m. from Euston and 5.43 p.m. from Wolverhampton (Birmingham 6.20 p.m., arrive Euston 8.40 p.m.).

LONDON-YORKSHIRE

Sheffield, Leeds and Bradford will benefit from the general speed-up of expresses on the Midland route, the average acceleration of principal trains from St. Pancras being: to Sheffield, 30 min.; to Leeds, 33 min.; with corresponding improvements in the up direction. Fastest times from these centres to London will now be: from Leeds, 4 hr. 13 min. (by a new express at 9.45 a.m.); from Sheffield, 3 hr. 18 min. (by the 9 a.m. and 10.40 a.m.).

OTHER IMPROVEMENTS

Cross-country services on the principal routes are also being accelerated.

The services between Euston and Northern Ireland will be further improved, the 3.35 p.m. Heysham boat express leaving 80 min. later, and the Stranraer boat express 95 min. later, the arrival times at Belfast being unchanged.

A new sleeping car service will be provided in each direction (except Saturdays and Sundays) between Euston and Barrow-in-Furness.

Railway Charges Consultative Committee.

When the hearing of the Railway Charges Consultative Committee into proposals for the adjustment of railway fares and charges was resumed on September 17, Mr. C. R. Dashwood, Chief Accountant, G.W.R., continued his detailed financial evidence and referred to the arrears of maintenance trust funds of the four main-line railway companies. The aggregated balances of those trust funds amounted, on December 31, 1945, to roundly £116 millions, of which £3½ millions represented the net amount of interest less some "trivial expenses" incurred in the administration of the funds.

"After December 31, 1945, because of the rising cost of materials and labour and having to place contracts outside, all four companies, in the early part of the present year, were incurring excess maintenance which brought the funds down to £110 millions. This seems a huge figure, but if you contrast it with one year's liability for maintenance and renewal, which is £95 millions in 1947, the figure doesn't look so impressive," he said.

Mr. Alfred Tylor, K.C. (for the railway companies): "What is the amount of restoration you expect to carry out in the reasonably near future?"

Mr. Dashwood: "In respect of permanent way, rolling stock and renewals, the programme of work of the four companies for 1946-50 amounts to £170 millions. That is outside any question of repairs to docks, steamboats, or any other categories of work. That money will be spent entirely out of our own resources."

In replying to a question, by Mr. Tylor, as to whether the Ministry of Transport from time to time had requested the controlled railways to charge in the net revenue accounts special provisions to cover contingent liabilities, Mr. Dashwood replied: "Yes. For the period from 1941-1945 the total amount set on one side and held at the disposal of the Minister in respect of special provisions was £30,000,000."

LOSS AND DAMAGE

Another question from Mr. Tylor was: "Compensation for damage and loss of goods greatly increased during the war?"

Mr. Dashwood replied: "There is no doubt that payment of compensation for damage and loss of goods in transit has increased out of all proportion since pre-war days. This is partly because of increased prices and partly because of less efficient protection against damage and pilfering. In 1938 the figure for the four main companies for compensation for damage and loss of goods was £470,000. In 1945 it was £3,669,000. The estimated figure for 1947 is £3,641,000."

Replying to another question Mr. Dashwood said that it had been estimated that the additional cost to the companies, through extra staff and overtime, of administering the P.A.Y.E. income tax scheme was about £250,000 a year. "I know that for the G.W.R. it is £40,000 a year," he added. "Before the introduction of P.A.Y.E. the railway companies used to collect the tax from the salaried staff and we used to get 1½ per cent. for doing it. That represented about £25,000 a year to the companies. So with the introduction of P.A.Y.E. we not only lost £25,000 a year, but received the additional burden of £250,000 a year."

Later in his evidence, Mr. Dashwood said that the volume of receipts in the future would be dependent largely on

the extent to which the decline in Government traffic was offset by increased commercial traffic resulting from the full employment of productive resources.

"It will be particularly dependent on the situation in the coal industry," he stressed. "The extent of the decline in Government traffic, the increase in commercial traffic and the coal situation are three unknown factors."

Mr. Dashwood said that improving the standard of passenger service to the extent which was the aim of the companies would involve additional work and costs, but would not necessarily involve additional receipts. The extent of such improvements was limited by such factors as the overtaking of wartime arrears, the training of new staff and the re-training of staff returning from the Forces.

HIGHER LABOUR COSTS

The increase of staff wages and salary basic rates was 63 per cent. over pre-war, Mr. Dashwood added. Improved conditions of service such as increased Sunday pay, night allowances and holidays-with-pay raised the percentage to 67. The additional annual cost of such wage increases and improved conditions amounted to £70 millions a year.

He went on to speak of the increased cost of materials since immediate pre-war days. Iron and steel had gone up 61 per cent., he said, and non-ferrous metals 48 per cent. Timber was classed in two categories—sleepers, which were up 204 per cent., and other timber, which had increased 135 per cent. Oils were up 101 per cent. and miscellaneous items 67 per cent. These figures gave a weighted average increase of 82 per cent. Scrap, which represented credit on recovery, was 59 per cent. up, and the net weighted average increase for maintenance materials was 86 per cent. Motor spirit was 32 per cent. up, diesel oil 53 per cent., lubricating oil 155 per cent., clothing 120 per cent., coal and coke 139 per cent., provender 188 per cent., and other miscellaneous items 103 per cent.

The cost of increasing the staff's paid annual holiday from one week to a fortnight was estimated at £2,300,000, Mr. Dashwood continued. Social insurance contributions, to be increased from November, would be doubled, and would involve an increase of £1,360,000 for the full year 1947. If the Government's social insurance proposals were implemented to the full, the estimated cost to the four main companies would exceed £3 millions a year. There was an additional superannuation fund liability of £500,000.

Mr. Dashwood, referring to Mr. Heald's comments on Monday on the conversion of twelve hundred engines from coal burning to oil firing, said that the programme which had been visualised had every possible priority, and the work should be completed by the end of this year. He stressed that the cost of operating oil-powered locomotives was far heavier than for operating coal-burning ones. This measure of increased costs was very problematical, he said. It was anticipated and hoped that there would be a material reduction in the price of the fuel oil. The estimate of an additional annual cost of upwards of £1,000 per converted locomotive, he thought, was a "very, very conservative calculation."

Referring to new rolling stock, Mr. Dashwood stated that in 1947 outside

contractors were to deliver 150 locomotives, 1,000 coaches, and between 4,000 and 5,000 goods and minerals wagons.

"But for the export drive the orders which we were prepared to place would have been considerably larger. Our programme of overtaking arrears from outside our own shops has been handicapped by the Government's decision to allocate production to export and to ration the railway companies in the production of rolling stock," he said.

After legal arguments on the production of statistics, the hearing adjourned.

When the hearing was resumed on Wednesday, Mr. C. R. Dashwood concluded his evidence.

Chairman (Sir Bruce Thomas, K.C.): "You have not been over liberal in your estimates of expenditure?"

Mr. Dashwood: "That is so. We have endeavoured to visualise as closely as we can what we think the actual position will be in 1947. You will have learned from my evidence yesterday that there have been many factors which could not be measured other than by estimate."

Factors which would tend to increase the expenditure estimates, but which they had not been able to detail, were mainly a rise in the present level of wage rates and prices of materials; a further increase in National Insurance contributions; improvements in the standards of services, and additional facilities afforded to the public, not reflected in the expenditure which had been varied in accordance with engine miles and engine hours; and the extra cost, which was entirely problematical, in respect of the conversion of locomotives from coal to oil burning.

The factors which would tend to decrease the estimate of expenditure, Mr. Dashwood added, were a fall in the present level of wage rates and prices of materials; a failure of hopes in connection with the improvement of passenger services because of the shortage of locomotives and coaches; and the output of repaired vehicles and new vehicles not coming up to expectations.

"We are, of course, dependent on the availability of enough coal"; he added, "after allowing for the oil-burning engines. We have the authority of the Minister of Transport to work on the assumption that we shall get the coal we need."

"It may be that as we get the fully-trained staff—the remaining 35,000—back from the Forces, there may be an improved standard of efficiency. The return of staff from the Forces may involve some economy by releasing not-so-efficient staff and perhaps reducing the number of female staff."

MR. F. A. POPE'S EVIDENCE

Second witness of the inquiry was Mr. Frank Aubrey Pope, a Vice-President of the L.M.S.R. and formerly Chief Commercial Manager.

Mr. Pope explained the difficulties of making estimates for 1947 because of unstable conditions, and outlined the factors determining the estimates of the levels of government and public traffic and alternative transport facilities.

"The Services' traffic is very heavy," Mr. Pope said: "We are still running 550 special troop trains and 300 special freight trains a week for the Forces."

From the Service departments and various Ministries they were able to know the likely trend of traffic. In estimating the trend of public traffic in 1947 they had to take account, by means of existing Government statistics, of the number of persons likely to be employed in 1947.

The road transport industry, however, was making great efforts to restore its pre-war services, and was in a more favourable position than the railway companies for rolling stock. A great number of passenger road services and road freight traffic which were in operation before the war were beginning to come back.

Mr. Pope said that the gross receipts for Government and public traffic in 1938 was £214 millions. It rose to a peak of £376 millions in 1945, was estimated to drop to £321 millions in 1946 and to £303 millions in 1947. But while there was that serious drop between the gross receipts for 1945 and the estimate for 1947, the estimated receipts for public traffic showed an increase from £237 millions in 1945 to £247 millions in 1946 and £252 millions in 1947.

"I think we have shown a certain faith in the ability of this country to recover from the war, and therefore our estimates have not been based on a 'well-we-don't-know-what-is-going-to-happen' attitude," Mr. Pope said. "Very much the reverse. We have said that we anticipate being called on to handle public traffic to the tune of £252 millions in 1947."

GOVERNMENT TRAFFIC

Total Government traffic in 1945 was £139 millions, but the estimate for 1947 was only £51 millions. Gross receipts from Government passenger traffic in 1945 were £76 millions, but were estimated to drop to £39 millions in 1946 and £20 millions in 1947, at the present level.

Public passenger train traffic had risen from £99 millions in 1938 to £119 millions in 1945, and was estimated to increase to £122 millions in 1946 and £124 millions in 1947.

There was a tendency, Mr. Pope suggested, for the public to travel more, on account of the rising trend of wages.

Mr. Pope continued that the total passenger train traffic in 1945 was £195 millions, but was estimated to drop to £161 millions in 1946 and £144 millions in 1947 due to the decline in Government passenger train traffic.

Mr. Pope proceeded to analyse the estimate of £144 millions passenger train traffic receipts for 1947, as follows: From ordinary passengers £102,841,000; from season tickets £11,935,000; from workmen's tickets £6,056,000; from parcels and merchandise (raw materials) £17,767,000; from mails £2,339,000; from parcels post £2,976,000—all the estimates being based on the present level of charges.

Government goods train traffic, which in 1945 was £63 millions, was estimated to fall to £35 millions in 1946 and to £31 millions in 1947, Mr. Pope continued.

Public goods train traffic rose from £115 millions in 1938 to £118 millions in 1945 and was estimated to increase to £125 millions in 1946 and £128 millions in 1947 on the present level of charges. The total estimated goods train receipts at the present for 1947 were £158,684,000.

Mr. Pope then produced statistics for engine miles and engine hours in the years 1938 and 1945, as compared with the estimate for 1947. Engine miles in 1938 totalled 583,689,517; in 1945 were 537,015,485, and were estimated to be 580,906,315 in 1947.

Engine hours in 1938 were 62,717,921; in 1945 were 67,006,427, and were estimated to be 68,652,166 for 1947.

Freight engine miles which, Mr. Pope said, had a direct relation with estimated traffic, rose from 263,995,425 in 1938 to 291,523,328 in 1945, but were expected to fall to 280,708,315 in 1947.

Coaching engine miles, which only had an indirect relation with estimated traffic, were 319,694,092 in 1938, had dropped to 245,492,157 in 1945, and were estimated to rise to 300,198,000 in 1947, which included a proportion of special trains.

Coaching engine hours were 24,080,651 in 1938; 20,336,276 in 1945, and were estimated to be 24,163,000 in 1947.

Freight engine hours were 38,637,270 in 1938; 46,670,151 in 1945, and were estimated to be 44,489,166 in 1947.

The hearing then adjourned until Thursday, when Mr. Pope said the railway companies were recommending that there should be an all-round increase of 37 per cent. over pre-war charges. That had been worked out from the figures which had been submitted to the Committee, first of the estimate of traffic likely to pass over the railways in 1947, and secondly the expenditure which would have to be increased to work that traffic.

"But there is an important point about these recommendations," Mr. Pope added. "That is the abolition of the differentials which were introduced by the Minister of Transport and whereby workmen's tickets, season tickets, and freight traffic were subsidised by the ordinary passengers."

"Of the reasons which led to the introduction of differentials in wartime, I have nothing to say. You have to do things in wartime which are quite exceptional, but the Committee is now considering what should be done in 1947, which we might describe as the first peacetime year, and it is the view of the railway companies now that the need for differentiating in favour of season tickets, workmen's tickets and freight traffic generally will not apply in the first peacetime year."

"Having considered the matter very carefully the railway companies have taken the view that if a general increase of 37 per cent. over pre-war is given it will have no appreciable effect on carryings in 1947."

Mr. Pope pointed out that fares increases before July, 1946, had been on a flat rate basis without differentials and added: "Now that we are back, approaching normal peacetime conditions, our view is that it would be a mistake to perpetuate these differentials which were created to meet particular circumstances in war."

Mr. Lionel Heald, K.C. (leading counsel for the railway companies): "When the Minister of Transport introduced the differentials in July, was that done on the advice or the approval of the railway companies?"—"No."

Mr. Pope continued that the increase of 37 per cent. all-round on pre-war levels would produce £589,000 in excess of the net revenue requirements of £38,633,000, but that would not justify the railway companies in making alterations in the percentage, as they could not deal with fractional percentages. Dealing with the differentials in detail, Mr. Pope said that from the layman's point of view they must inevitably mean subsidising goods at the expense of passengers. The railway companies could not support that.

Mr. Pope added later: "If you subsidise the season tickets and workmen's tickets by increasing the ordinary fares, it means that quite a lot of people will be hit. The ordinary fare-paying passenger for nine months of the year is engaged on work and not pleasure. It isn't a question of saying, 'Oh, well, the workmen's tickets and season tickets are part of a man's life and therefore they ought to be specially dealt with,' because a great deal of ordinary traffic on the railway is part of a man's life."

Mr. Pope said that if the existing differentials were maintained, to obtain the annual net revenue required, passenger fares would have to go up to 42½ per cent. over pre-war; parcels to 42½ per cent.; season and workmen's tickets to 33½ per cent.; and freight to 33½ per cent.

DOCK AND HARBOUR CHARGES

Mr. Pope then proceeded to deal with docks, harbours, and wharves charges. Under its terms of reference, he agreed, the Committee, in considering adjustments to existing charges, was "to have regard to the importance of maintaining adequate coastwise shipping services." Proposals from the railway companies, Mr. Pope said, included the increase of docks, harbours, and wharves statutory charges for coastal liners and cargoes to 60 per cent. above the pre-war level as compared with 15 per cent. over pre-war level at present; the increase of statutory charges for other rates, dues, and charges from the present level of 40 per cent. over pre-war to 60 per cent.; and the raising to 37 per cent. over the pre-war charges of the allocated proportion of through rail rates and fares for passenger train traffic (now 33½ per cent. over pre-war) and goods train traffic (now 25 per cent. over pre-war).

The estimated gross receipts for 1947 at the present rates for statutory charges for coastal liners and cargoes would be £99,000, but at the level of increased charges recommended by the railway companies would increase to £138,000. Estimated gross receipts for 1947 at the present level for statutory charges for other rates, dues, and charges would be £4,463,000, and with the recommended adjustments would increase to £5,101,000. There were other receipts of £1,969,000, which were not subject to review. The recommendations would involve a total estimated annual increase of docks, harbours, and wharves charges from £7,360,000 to £8,111,000.

The increases to 60 per cent. over pre-war, according to Mr. Pope, were "regarded by the railway companies as very reasonable," and would not prevent the continuance of adequate coastwise shipping services. "If we wanted to make the railway-controlled docks self-supporting we would have to raise charges to 118 per cent. over pre-war levels," he said.

At the conclusion of Mr. Pope's evidence, Mr. Hutchinson, K.C., for the Chamber of Shipping of the United Kingdom, told the Committee:—

"We are here by reason of the express task which has been placed upon you by the Minister of Transport in respect to the importance of maintaining adequate coastal services. Our evidence will show the effect which the proposals that the railway companies are making is likely to have on the coastwise services during 1947 and in subsequent years."

"But you are only concerned with the charges for 1947, which is likely to be a very vital year for the coastal shipping industry. Many vessels have been diverted from their normal tasks to war purposes and have not yet come back. Many vessels have been destroyed by enemy action and other ways during the war, and during 1947 the owners will have to consider whether those vessels that have been diverted from coastal shipping are to be brought back, and whether tonnage lost during the war is to be replaced."

The hearing then adjourned to allow legal representatives of the large number of bodies interested in the proceedings to consider the evidence.

The New Railway Convalescent Home

On Friday of last week (September 20) the new home at Buxton of the Railway Convalescent Homes was formally opened. This home was a gift from American railwaymen to British railwaymen made by the American Federation of Labour and the Congress of Industrial Organisations.

The properties consisted of the former Bedford Hotel, in St. John's Road, Buxton, and the adjacent staff annexe, known as Portland House. They were presented by the American donors completely furnished and equipped at a total cost of \$73,000, or more than £18,000 in English money. Incidentally, an advantageous purchase was made, and there is little doubt that these properties are worth a substantially greater sum today.

The Chair was taken by Sir Robert A. Burrows, Chairman of the London Midland & Scottish Railway and President of the Railway Convalescent Homes.

Among those present were:—

Mr. G. Royde Smith, Secretary of the L.M.S.R.; Mr. Paul Felix Warburg, Special Representative of the American Ambassador; Mr. Samuel D. Berger, Labour Attache, American Embassy; Mr. Anthony Luchek, British Representative of the Congress of Industrial Organisations, U.S.A., and Mrs. Luchek; the Lord Bishop of Derby; the Rev. G. T. Carlisle, Vicar of Buxton; the Mayor of Buxton (Major J. H. Bounds, M.C.) and Mrs. Bounds; Mr. J. B. Figgins, representing the National Union of Railwaymen; Mr. H. E. Bidwell, President of the Associated Society of Locomotive Engineers & Firemen; and many local civic and other officials.

The Railway Convalescent Homes was represented by:—

Mr. W. Tyrrell, Vice-President; and the following Trustees: Messrs. W. F. Smith (Chairman); F. T. Roach (Deputy-Chairman); J. Allan, J.P.; F. Billington; R. F. Buck; R. W. J. Canham; F. G. Colman; A. L. Crewe; R. O. Griffiths; G. H. Nicholson; F. W. Wheddon; and H. Haigh (Secretary).

It had been hoped that Mr. Bertram de N. Cruger, Chairman of the British War Relief Society of the U.S.A. Inc., would have related the circumstances leading to the gift, but his absence in the U.S.A. prevented this, and he sent the following letter from New York dated September 4:—

"This Buxton project is, in effect, the

symbol of a desire on the part of two great American labour unions to stretch the hands of friendship to their opposite numbers across the Atlantic. In the very dark days of the war—at times they were more than dark, they were black—a great wave of admiration and sympathy for Britain seemed to overwhelm my country.

"The British War Relief Society of the U.S.A. was the instrument used for the practical expression of this great wish to help, and at one time over a million and a half volunteer workers were giving of their time, energy, and material resources to this end. Our committees in America stretched from coast to coast and numbered over a thousand, and all were actuated by the one motive—to help in any way in which they could.

"It became my duty to confer with your people on many matters, and in this particular connection to obtain from you, for the benefit of union workers in Britain, an expression of your wishes which I could transmit to my people at home.

"Of the many groups in the United States who strove to help and did help in many ways, none did more than these two great organisations, the American Federation of Labour and the Congress of Industrial Organisations. As you probably know, there are Merchant Navy Clubs, Rest Homes, Hostels for the Women's Land Army, Rehabilitation Centres, Community Centres, and other projects too numerous to specify here, but all indicative of the fact that, cynics to the contrary notwithstanding, there is such a thing as the brotherhood of man.

"I understand that one of the trade union leaders will perhaps be reading this letter. Through him I would convey to you, first, my expression of real regret that I cannot be present today, and secondly, my respects to your Chairman, and lastly, my sincere good wishes for the success and usefulness of this Home."

This letter was read by Mr. J. B. Figgins, representing the National Union of Railwaymen.

His Excellency, the American Ambassador, intended to be present, to hand over the title deeds of the property, but he was detained by his duties in Paris and was represented by his Special Assistant, Mr. Paul Felix Warburg.

The thanks of the Railway Convalescent

Homes to the American Federation of Labour and the Congress of Industrial Organisations was expressed by Mr. W. F. Smith, Chairman of the Board of Trustees of the Homes, who said that he was speaking not only on behalf of himself and his colleagues, but also on behalf of the railwaymen and railwaywomen of Great Britain. They were indeed glad that the American railwaymen had thought the British railway workers worthy of such a gift.

The task of British railway workers was no light one during those years of war, and the part they played was no mean one, but today they felt proud that their courage, devotion, and steadfastness had been recognised in such a splendid manner and so appropriately by their fellow workers in the U.S.A.

This was the ninth Railway Convalescent Home to be opened. There were now six for men and three for women. They belonged to the railway workers of the various railway companies and were managed by a Board of Trustees and Committees, all of whom were themselves in the railway service and all of whom gave their services voluntarily.

During the coming years many thousands of railwaymen recovering from sickness or accident—and especially from that scourge rheumatism—would stay at the new home, and it was hoped that their stay would give them renewed health and strength.

The bronze tablet later to be unveiled would remind every patient of this most generous gift and would be the means of keeping alive this friendship with fellow workers in America.

RESPONSE TO VOTE OF THANKS

The vote of thanks was acknowledged by Mr. Anthony Luchek, who said that in the early days of 1941 the American trade unions decided to show the sympathy and support of American workers for what was being done in the interests of democracy by the British workers, and to give a demonstration of international labour solidarity. They had raised substantial sums of money, and were glad to be able to use it for such worthy objects as the provision of the present convalescent home.

The Mayor of Buxton (who said that he commenced his business life on the old Midland Railway) moved the vote of thanks to Mr. Warburg.

The Lord Bishop of Derby then dedicated the home.

Mr. Warburg unveiled a bronze memorial plaque on the wall of the home.

L.M.S.R. SEAT RESERVATIONS EXTENDED.—Advance reservation of train seats is to be restored, as from October 7, to the following L.M.S.R. Anglo-Scottish expresses:

From London Euston: 10 a.m. to Glasgow Central, weekdays and Sundays; 10.8 a.m. (weekdays) to Perth; 1.15 p.m. (weekdays) to Glasgow Central.

From Glasgow Central to Euston: 10 a.m. and 1.15 p.m. weekdays; 10 a.m. and 11.30 a.m. Sundays.

From Perth: 8.50 a.m. (weekdays) to Euston.

On the principal boat expresses between Euston and Holyhead, Heysham, and Stranraer and vice versa, seats will be bookable in advance at terminal stations as from October 7 by all passengers, whether making through journeys to or from Ireland or not. At present, seats are reserved on these trains only for through passengers to and from Ireland. Seats will be reservable at 1s. each.



Group at the formal inauguration of the new Buxton Home of the Railway Convalescent Homes. Left to right: Messrs. Samuel D. Berger, W. F. Smith, Anthony Luchek, Paul Felix Warburg, Sir Robert Burrows, the Mayor of Buxton, the Bishop of Derby, and the Rev. G. T. Carlisle (Vicar of Buxton)

Notes and News

Railway Earnings in South Africa.—Railway earnings in South Africa for the period August 4 to August 31 amounted to £4,409,757, compared with £3,998,408 in the corresponding period of last year.

Senior Engineering Draughtsman Wanted for Kenya & Uganda Railways.—The Kenya & Uganda Railways require a senior engineering draughtsman for one tour of two to four years in the first instance. Candidates must have a sound knowledge of design of permanent way and railway yard layouts. See Official Notices, page 367.

Seat Reservations on the G.W.R.—Paddington Station seat reservation office, closed during the war, re-opened on September 19, when passengers were able to book their seats in advance for journeys after October 7 on a number of expresses (see our September 13 issue). A booking fee of 1s. is charged. Reservations must be made by 4 p.m. on the day before the journey. Seats will not be reserved by telephone. Seats on corresponding up services to Paddington may be booked at a number of provincial stations.

Cheap Day Tickets from Paddington, G.W.R.—As from October 1, third class cheap day tickets will be issued from Paddington Station on Tuesdays, Wednesdays, and Thursdays to 34 suburban stations in the London area, extending as far as Staines, Windsor, Maidenhead, Marlow, High Wycombe, Princes Risborough, and Aylesbury. Tickets will be available by any train except those leav-

ing Paddington from 4.30 p.m. to 6.30 p.m. inclusive. Passengers booking to stations on the joint line between South Ruislip and Aylesbury may return, if they wish, to Marylebone.

Aire & Calder Navigation Charges.—The Minister of Transport has made the Aire & Calder Navigation (Increase of Charges) (Amendment No. 1) Order, 1946. Copies may be obtained from the Ministry of Transport, Berkeley Square House, London, W.1.

"L.N.E.R. Handbook of Statistics."—The small handbook of statistics issued by the L.N.E.R. and which was the subject of an editorial article in our September 20 issue, may be obtained free of charge on application in writing to the Advertising Manager, L.N.E.R., 26, Pancras Road, London, N.W.1.

Rail Services Interrupted by Floods.—Heavy rain and gales on the night of September 20-21 caused widespread floods, which affected rail services particularly in Yorkshire and Lancashire. Both main routes of the L.M.S.R. between Manchester and Leeds were interrupted, first by a burst culvert near Walsden Station, on the former L. & Y. line, which flooded the Summitt Tunnel, and later by flooding of the Standedge Tunnel on the former L.N.W.R. route. Express services on both routes were suspended, trains being diverted via Accrington, Rosegrove (Burnley), and Todmorden. Overflowing of the River Aire flooded Kirkstall Station, L.M.S.R., near Leeds. A subsidence at Wiltshire, L.M.S.R., between Blackburn and Hellfield, interrupted services from Manchester Victoria, and Blackburn-Pres-

ton trains were delayed by flooding of a level crossing at Bamber Bridge.

Derailment at Catford, Southern Railway.—On September 21 seven coaches of the 2.10 p.m. train from Victoria to Ramsgate were derailed when passing over a 30-ft. embankment at Catford. The engine left the rails, but remained upright, but the first four coaches broke away, three falling over the bank into the car park of the Catford Stadium, and the fourth hanging from the top of the remaining of the embankment. Of the remain-

British and Irish Railway Stocks and Shares

Stocks	Highest 1945	Lowest 1945	Prices	
			Sept. 24, 1946	Rise/ Fall
G.W.R.				
Cons. Ord.	60½	47½	56	+ ½
5% Con. Pref.	124½	104½	111½	—
5% Red. Pref. (1950) ..	107½	101½	104½	—
5% Rt. Charge	137½	120	127½	—
5% Cons. Guar.	135½	117	122½	+ 1
4% Deb.	118	106	113½	—
4½% Deb.	119½	108	116½	—
4½% Deb.	124½	111½	122	—
5% Deb.	138	124	133½	—
2½% Deb.	83	74½	89½	—
L.M.S.R.				
Ord.	33	23½	28	+ ½
4% Pref. (1923)	65	50	53½	+ 1½
4% Pref.	80½	69½	76	+ 1½
5% Red. Pref. (1955) ..	106½	99½	102½	—
4% Guar.	106½	97	101½	+ ½
4% Deb.	110½	102	108	—
5% Red. Deb. (1952) ..	110½	103½	106½	—
L.N.E.R.				
5% Pref. Ord.	8½	5½	5½	+ ½
Def. Ord.	4½	2½	2½	—
4% First Pref.	62½	49½	52	+ 1
4% Second Pref.	33½	24½	27	+ ½
5% Red. Pref. (1955) ..	103	96	99	—
4% First Guar.	104½	95	99½	+ ½
4% Second Guar.	97	89½	94½	—
3% Deb.	91½	82½	94½	—
4% Deb.	109½	101	108	—
5% Red. Deb. (1947) ..	103½	100	99½	— ½
4½% Sinking Fund Red. Deb.	106½	103	105½	—
SOUTHERN				
Pref. Ord.	79½	63	71	—
Def. Ord.	27	20½	20½	+ ½
5% Pref.	124½	104	109½	—
5% Red. Pref. (1964) ..	117	107	109½	—
5% Guar. Pref.	135½	117	122½	—
5% Red. Guar. Pref. (1957)	117	106½	111½	—
4% Deb.	117	104½	112½	+ ½
5% Deb.	137	124	132½	—
4% Red. Deb. (1962- 67)	112	104½	109½	—
4% Red. Deb. (1970- 80)	113½	104	109½	—
FORTH BRIDGE				
4% Deb.	106	103	106	—
4% Guar.	106	101	103	—
L.P.T.B.				
4½ "A"	125	117	125½	—
5% "A"	135	127	135½	—
3% Guar. (1967-72) ..	100	97½	105	—
5% "B"	125½	115	120½	—
"C"	70	58	60½	—
MERSEY				
Ord.	37	31½	30	—
3% Perp. Pref.	72½	68½	73	—
4% Perp. Deb.	104½	104	105	—
7% Perp. Deb.	84	78½	82½	—
IRELAND*				
BELFAST & C.D.				
Ord.	8½	6	7½	—
G. NORTHERN				
Ord.	34	24½	30½	— ½
Pref.	52½	42½	59	— 1½
Guar.	80	68	92	—
Deb.	97½	87½	105	—
IRISH TRANSPORT				
Common	—	—	18/9	+ 3
3% Deb.	—	—	102½	— ½

* Latest available quotation

Danish State Railwaymen in London



Lt.-Colonel H. Rudgard, Superintendent of Motive Power, L.M.S.R., showing the representatives of the Danish State Railways over the motive power depot at Kentish Town (see paragraph in our last week's issue, page 326)

OFFICIAL NOTICES

Burma State Railways

URGENT vacancies exist for (a) Civil Engineers (Senior and Junior); (b) Mechanical Engineers; and (c) Railway Signal Engineers in the Burma State Railways. Candidates should be British subjects aged preferably between 25 and 40, and should possess an Engineering degree or equivalent qualifications, plus the following: For (a) at least seven years' (Senior) and two years' (Junior) practical experience on Civil Engineering Works. For some of the Senior posts experience of railway maintenance is essential, and this would be an advantage for the other posts; (b) apprenticeship or pupilage with a main-line railway and at least two years' subsequent experience in the Locomotive or Carriage and Wagon Departments; (c) experience in Electrical and Mechanical Interlocking and Block Telegraph Instruments and Telephones.

Contract for 3 years. Salary, at flat rate throughout and fixed according to age on appointment, from Rs.850 a month for age 25 (£765 a year) to Rs.1,700 a month for age 40 (£1,530 a year). Free passage to and from Burma and for families should conditions permit. Bonus on satisfactory termination of contract of £100 or £150 (depending on salary) for each year's service. Free medical attention.

Further particulars and forms of application may be had on request (by postcard) from the Office of the High Commissioner for India, India House, Aldwych, London, W.C.2. Last date for the receipt of applications, October 12, 1946.

ing five coaches, all but the rear two left the rails. One passenger was killed and 16 were taken to hospital with injuries. The train was travelling at about 20 m.p.h. at the time of the derailment.

Vickers Limited Dividend.—An interim dividend of 4 per cent. (actual), less income tax, on the ordinary stock of Vickers Limited, in respect of the year 1946, will be paid on October 22.

Delegates to Tourist Conference.—Countries which have notified their intention to send delegates to the International Conference of National Tourist Organisations, to be open at County Hall, Westminster, London, on October 1, include Australia, Belgium, Canada, China, Czechoslovakia, Denmark, East Africa, Egypt, Eire, Finland, France, Great Britain, Hungary, Italy, Luxembourg, Malaya, Mexico, the Netherlands, New Zealand, Norway, Roumania, Southern Rhodesia, Sweden, Switzerland, and the United States. The conference has been organised by the Travel Association of Great Britain & Ireland. Arrangements for the entertainment of the delegates include a round-Britain air tour, as guests of British European Airways, with a

A CHIEF COST AND WORKS ACCOUNTANT is required for the Chief Accountant's Department of the London & North Eastern Railway. The responsibilities include the supervision of the accounting and costing throughout the Works controlled by the Chief Mechanical Engineer. Candidates must be qualified and hold responsible executive positions in industry. A knowledge of Budgetary Control and Standard Costs and some experience in the engineering industry is desirable. Age not over 40 years. Commencing salary, £1,500 per annum. Superannuation benefits.

Applications must give age and full details of education, qualifications, experience, positions held and salaries earned. They should be addressed to Robson, Morrow & Company, 59, New Cavendish Street, London, W.1.

A CHIEF PRODUCTION ENGINEER is required for the Chief Mechanical Engineer's Department of the London & North Eastern Railway. The responsibilities include assisting the Chief Mechanical Engineer in the supervision of the Works concerned with the building and repairing of locomotives, carriages and wagons. Candidates must be highly qualified and hold executive positions in the engineering industry. Age not over 45 years. Commencing salary, £2,000 per annum. Superannuation benefits.

Applications must give age and full details of education, qualifications, experience, positions held and salaries earned. They should be addressed to Robson, Morrow & Company, 59, New Cavendish Street, London, W.1.

luncheon at the Prestwick airport. London hotels will show what this country can do in administering to the comfort of visitors from overseas. There will be a reception at the Savoy by the British Travel Association, an evening reception at the Dorchester with the Hotels & Restaurants Association of Great Britain as host, and luncheon receptions at the Dorchester and Grosvenor House on various days during the conference week, when delegates will be the guests of the British Liners Committee, Thos. Cook & Son Ltd., the railway companies of Great Britain, and British Overseas Airways Corporation. H.M. Government is holding a reception on the evening of the fourth day of the conference.

New Loudspeaker Installation at Newport, G.W.R.—The G.W.R. is to provide a new loudspeaker installation at Newport High Street Station. It will have seven circuits covering all platforms, the booking hall and down and up refreshment rooms; they will be used individually, in groups, or collectively as required. A broadcasting "studio," to be built on platform 4, and from which the train announcements will be made, will be con-

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

A PPLICATIONS from qualified candidates are invited for the following post:—

SENIOR DRAUGHTSMAN (ENGINEERING) required by the Kenya & Uganda Railways & Harbours for one tour of 2 to 4 years in the first instance. Salary £500 a year rising to £600 a year plus cost-of-living allowance at present about £27 for a single man and for a married man between £81 and £145 according to number of dependants. Outfit allowance £30. Free passages and quarters. Candidates must have a sound knowledge of the design of permanent way and railway yard layouts and some experience of railway signalling would be an advantage. A general knowledge of structural engineering is also desirable. Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/N/12650 on both letter and envelope.

THE Hunslet Engine Co. Ltd., Leeds, are urgently requiring the services of Senior Draughtsmen. Men with Locomotive experience preferred but not essential provided applicants can satisfy requirements. Prospects of continuous work with good working conditions and canteen facilities.—Apply, 125, Jack Lane, Leeds 10.

nected by telephone with signal-boxes and other strategic points. An indicator will tell the announcer when a train is ready to start so that passengers can be advised.

Gale Casualties on Southern Railway Steamer.—During the gale on September 20, during which winds reaching a force of 100 m.p.h. were experienced on the south-west coast, the Southern Railway steamer, *Isle of Jersey*, was struck by a 60-ft. wave when about 20 miles from Guernsey, bound for Southampton. Three passengers were washed overboard and lost, and 22 were injured.

Cheap Day Tickets from London by Southern Railway.—The Southern Railway announces that beginning on October 1, cheap day tickets will be issued from London to numerous stations in the suburbs and inner country districts. These tickets will be issued on Tuesdays, Wednesdays, and Thursdays by all trains (except between 4.30 p.m. and 6.30 p.m.) for return by any train the same day. The previous restoration of cheap day tickets in the London area, on August 1, applied only to return journeys from suburban stations to London termini, as reported in our July 19 issue.

"Britain Can Make It" Exhibition.—The exhibition organised by the Council of Industrial Design, entitled "Britain Can Make It," at the Victoria and Albert Museum, South Kensington, was opened by the King on September 24. It will close on a date between October 31 and November 23, according to attendance. The exhibition covers a comprehensive range of consumer goods, and is selective; space has not been sold. Although it is not a trade fair, home and overseas buyers may obtain particulars of any goods which interest them, and will have facilities for establishing direct contact with manufacturers. In the course of a recent statement, the Chairman of the Council of Industrial Design, Sir Thomas Barlow, expressed the Council's appreciation of the co-operation received from all quarters, especially from British industry, which, he said, had done, in very difficult conditions, a magnificent job in putting up for consideration nearly 18,000 individual items, from 3,582 firms. The number of exhibitors at the British Industries Fair in 1939 had been 2,339. The number of exhibits shown would be not far short of 6,000, coming from over 1,300 firms.

Horticultural Show at Euston, L.M.S.R.



Mr. R. P. Humphrys, Chief Solicitor, L.M.S.R. (left), Commander Campbell, Mr. R. Bagwell, District Passenger Manager, London, L.M.S.R., and Mr. W. B. Shelton, District Operating Manager, London (Western), L.M.S.R., at the annual show of the Euston Station (L.M.S.R.) Horticultural Society

Railway Stock Market

Stock markets have been dull and uncertain with prices easing in most sections because of pessimistic views of the Wall Street outlook. Nevertheless, strength was maintained by British Funds, and there is considerable divergence of opinion whether markets will necessarily move in unison with Wall Street during the next few months. In fact, so long as the cheap money policy can be maintained by the Treasury, British Funds are unlikely to decline to any extent below current levels, and the yield on gilt-edged is the main consideration which governs the structure of markets generally.

Increasing appreciation of the serious coal situation and the recent floods in the North were among the factors which influenced an easier trend in leading industrials this week; but declines on balance have been small, and generally little selling was in evidence, although on the other hand, buyers were showing caution, awaiting international developments. The agreements with France and Brazil which have followed the Anglo-Argentine agreement created a good impression, but had only limited influence on markets.

Argentine rails were again prominently active, and on balance debenture stocks recorded further substantial gains, although best levels were not held. Nevertheless, profit-taking was not heavy, and after an earlier reaction, the somewhat lower prices attracted renewed buying interest in view of Sir Montague Eddy's statement that the agreement is eminently satisfactory for the railways and that the capital structure of the new Argentine company which is to take over the railway assets will be equitable to every class of shareholder. He also disclosed that the capital structure is to be arranged by a technical mission

which is to visit Buenos Ayres in October.

Apart from the important question of capital, there are other vital matters on which will turn the value of preference and ordinary stocks, namely, how the capital will be apportioned between the various companies. According to some views, some of the companies may first decide to reorganise their existing capitals so as to deal with the question of debenture interest arrears. It is noticeable that debenture stocks carrying interest arrears, such as Buenos Ayres & Pacific 1912 debentures and Central Argentine 5 per cent., have shown particularly large improvements since the first news of the agreement.

Until the shape of things to come is more clearly defined the ordinary or equity stocks must continue to be regarded as carrying a good measure of speculative risk, although the general opinion is that, taking more than a very short view, they are more likely to rise than fall. Over a long period of years they have had a poor dividend record, but fair treatment seems assured, bearing in mind that in view of their voting rights, approval of the scheme will depend on ordinary stockholders.

Compared with a week ago, Buenos Ayres Great Southern ordinary has eased from 14 to 13, the 5 per cent. preference at 32 gained a further two points, and the 4 per cent. debentures advanced further from 73 to 79. Buenos Ayres & Pacific dropped back from 9½ to 7½; the debentures have risen substantially, particularly the 5 per cent. 1912 stock, now 63, compared with 50 a week ago. Buenos Ayres Western, 17½ a week ago, has receded to 15, but the 5 per cent. preference was 45, compared with 43 a week ago, and the 4 per cent. debentures a further six points

higher at 78. Central Argentine ordinary receded from 9½ to 8½, the preference stocks moved moderately higher, but the 4 per cent. debentures have risen further on balance from 68 to 77 and the 5 per cent. debentures were 11 points higher at 79.

Argentine Great Western 5 per cent. debentures were 75, against 64 a week ago; Argentine North Eastern "C" debentures with an advance from 21 to 31 were also prominent among stocks carrying interest arrears. Central Uruguay and Entre Rios reflected the general trend; the ordinary were lower on the week, and the preference showed small gains, and debentures have advanced strongly.

San Paulo led a further rise in Brazilian rails, and was 91½, compared with 85 a week ago, although best levels were not held. Leopoldina moved higher, particularly the 4 per cent. debentures, which have risen from 54 to 63; Leopoldina Terminal were also better. Early this week Dorada railway stock was marked up from 70 to 87½ on vague talk of the line being taken over. French railway sterling bonds eased. United of Havana debentures improved to 18½ on the better traffics.

Home rails again strengthened, the market giving more attention to the good case which can be made out for the view that ordinary stocks may prove to be moderately valued at current levels. Great Western improved from 55½ to 55½, and L.M.S.R. from 27½ to 27½, while the preference stocks were also better. L.N.E.R. second preference was 26½ after easing to 26½; the first preference at 52 gained a point. Southern deferred strengthened from 20½ to 20½, and the preferred from 70½ to 71. London Transport "C" remained at 60.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week		No. of Week	Aggregate traffic to date			Shares of Stock	Prices			
			Total this year	Inc. or dec. compared with 1944/5		Totals		Increase or decrease		Highest 1945	Lowest 1945	September 24, 1946	
						1946/7	1945/6						
			£	£		£	£	£					
Antofagasta ...	834	15.9.46	41,470	+ 7,120	37	1,199,730	1,106,220	+ 93,510	Ord. Stk.	12	8½	10½	
Arg. N.E. ...	753	14.9.46	ps. 333,800	+ ps. 44,000	11	ps. 3,458,700	ps. 3,356,700	+ ps. 102,000	"	10	5½	9	
Bolivar ...	174	Aug., 1946	3,995	- 1,040	35	34,095	39,437	- 5,342	6 p.c. Deb.	8½	5½	6½	
Brazil ...	—	—	—	—	—	—	—	—	Bonds	25	17	29½	
B.A. Pacific ...	2,771	14.9.46	ps. 2,075,000	+ ps. 151,000	11	ps. 23,113,000	ps. 21,686,000	+ ps. 1,427,000	Ord. Stk.	7	5	7½	
B.A.G.S. ...	5,080	14.9.46	ps. 3,506,000	+ ps. 197,000	11	ps. 35,754,000	ps. 34,544,000	+ ps. 1,210,000	Ord. Stk.	13½	10½	14	
B.A. Western ...	1,924	14.9.46	ps. 1,207,000	+ ps. 11,000	11	ps. 13,139,000	ps. 12,109,000	+ ps. 1,030,000	"	12½	9½	16	
Cent. Argentine ...	3,700	14.9.46	ps. 3,091,500	+ ps. 137,400	11	ps. 34,190,751	ps. 33,469,350	+ ps. 722,401	"	9½	7	9	
Do. ...	—	—	—	—	—	—	—	—	Def.	5	2½	5	
Cent. Uruguay ...	970	14.9.46	35,335	+ 425	11	379,489	380,846	- 1,357	Ord. Stk.	7½	4	8	
Costa Rica ...	262	July, 1946	37,093	+ 6,000	4	37,093	31,093	+ 6,000	Stk.	16½	13	13½	
Dorada ...	70	Aug., 1946	35,400	+ 6,400	35	256,775	243,335	+ 13,440	1 Mt. Deb.	103	102	102½	
Entre Rios ...	808	14.9.46	ps. 408,900	+ ps. 2,300	11	ps. 4,645,000	ps. 4,638,500	+ ps. 6,500	Ord. Stk.	7½	4½	6	
G.W. of Brazil ...	1,030	14.9.46	27,300	+ 1,800	37	1,005,200	898,700	+ 106,500	Ord. Stk.	30½	23½	28½	
Inter. Ctl. Amer. ...	794	June, 1946	\$814,722	+ \$12,606	26	\$6,472,238	\$5,532,507	+ \$939,731	"	—	—	—	
La Guaira ...	22½	Aug., 1946	6,322	+ 109	35	46,020	49,503	- 3,483	5 p.c. Deb.	78	70	58	
Leopoldina ...	1,918	14.9.46	73,895	+ 15,996	37	2,177,786	1,881,696	+ 296,090	Ord. Stk.	4½	3½	5	
Mexican ...	483	31.5.46	ps. 1,464,000	+ ps. 459,100	22	ps. 18,661,800	ps. 13,441,600	+ ps. 5,220,200	Ord. Stk.	4	1	1	
Midland Uruguay ...	319	Aug., 1946	20,392	+ 3,190	8	39,376	36,932	+ 2,444	"	—	—	—	
Nitrate ...	382	15.9.46	5,919	+ 3,985	37	150,701	132,226	+ 18,475	Ord. Sh.	75/6	67/6	73/9	
N.W. of Uruguay ...	113	Aug., 1946	6,471	+ 1,380	8	11,173	11,183	- 10	"	—	—	—	
Paraguay Cent. ...	274	13.9.46	£60,665	+ £6,595	11	£665,710	£689,984	- £24,274	Pr. Li. Stk.	79½	77	73½	
Peru Corp. ...	1,059	Aug., 1946	169,782	+ 21,329	9	320,684	283,203	+ 37,481	Pr. Stk.	10½	7½	10	
Salvador ...	100	30.8.46	c 80,000	- c 11,000	4	c 1,597,450	c 1,511,000	+ c 86,450	"	—	—	—	
San Paulo ...	153½	—	—	—	—	—	—	—	Ord. Stk.	60½	50½	92½	
Taitai ...	156	Aug., 1946	3,255	+ 840	9	7,050	4,200	+ 2,850	Ord. Sh.	17½	10½	18½	
United of Havana ...	1,301	15.9.46	50,397	+ 2,337	11	591,834	503,993	+ 87,841	Ord. Stk.	3	1	2	
Uruguay Northern ...	73	Aug., 1946	1,490	+ 25	8	2,621	3,397	- 776	"	—	—	—	
Canada	Canad'an National ...	23,535	Aug., 1946	8,772,000	- 770,000	31	63,922,500	72,970,500	- 9,048,000	"	—	—	—
	Canad'an Pacific ...	17,037	14.9.46	1,554,750	- 37,500	37	50,112,750	55,661,750	- 5,549,000	Ord. Stk.	24	14½	19½
Various	Barsi Light† ...	202	Aug., 1946	19,605	+ 442	22	129,315	114,652	+ 14,663	Ord. Stk.	131	123	114
	Beira ...	204	June, 1946	78,908	+ 1,361	34	676,166	693,407	- 17,241	"	—	—	—
	Egyptian Delta ...	607	31.8.46	19,189	+ 3,640	22	252,299	242,493	+ 9,806	Pr. Sh.	10	8½	5½
	Manila ...	—	—	—	—	—	—	—	B. Deb.	71	55½	65½	
	Mid. of W. Australia ...	277	July, 1946	14,495	+ 729	4	14,495	13,766	+ 729	Inc. Deb.	97½	85	75
	Nigeria ...	1,900	June, 1946	441,797	+ 167,749	14	1,120,904	837,609	+ 283,295	"	—	—	—
	Rhodesia ...	2,445	June, 1946	533,593	+ 10,968	34	4,600,381	4,510,817	+ 89,564	"	—	—	—
	South African ...	13,323	17.8.46	1,139,079	+ 231,514	20	21,968,166	19,645,260	+ 2,322,906	"	—	—	—
	Victoria ...	4,774	May, 1946	1,351,280	+ 4,246	—	—	—	—	"	—	—	—

† Receipts are calculated @ Is. 6d. to the rupee